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### Resources for Students

To download or print student handouts, visit the Wildfire in the Foothills page on the Butte County Fire Safe Council website. Here you will find the following resources in a combined pdf:

Lesson 5: Prepare your Home Firewise

Lesson 6: Go Kit from the National Fire Protection Association

Lesson 6: Family Communication Plan from Ready.gov

Lesson 7: Stay Informed During an Emergency Trifold

Lesson 7: Ready, Set, Go Evacuation Plan



## Forward to Educators

Thank you for your time and effort to bring wildfire education into your classroom. Education is a key component of the Butte County Fire Safe Council's mission to build wildfire resilience in Butte County. Each sixth grader can play a valuable role in their family's and community's wildfire preparedness. Wildfire in the Foothills is most relevant for students who live in fire-prone areas in the wildland urban interface, with an annual fire season that puts their communities at risk. Education can move people towards living better with fire and, if a wildfire does occur, residents are better prepared to stay safe. This program gives your students the opportunity to take positive action and reduces the potential anxiety or the feelings of helplessness when living in an area repeatedly impacted by wildfires. This updated curriculum is relevant for those living outside the foothills as well. We strive to have more schools across the county bring fire and emergency preparedness topics into the classroom, because fire impacts everyone in the region.

### **About the Program**

The program in this format is intended to be used in the classroom and not as distance learning or independent study work. This program serves to give students an introduction to wildfire, with an emphasis on community and personal fire preparedness. Wildfire in the Foothills is broken into seven lessons with accompanying presentation slides to be projected overhead in the classroom. The lesson plans contain key slides with speaker notes and background information. Each lesson is approximately one hour with the option to extend the lesson with assessment activities. Some activities can be completed in class, while others have the option for multi-day projects or homework assignments. Activities are written with variations, and you are encouraged to adapt the activity to best fit your students, class goals, and time available for the program. The activities allow students to show their learning in a variety of ways including art, media, written responses, and oral presentations. Many of these activities can be shared with the Butte County Fire Safe Council, students' families, or others at your school, to grow community awareness and preparedness. You may elect to spread the program out across multiple weeks or months or to focus on it for a more concentrated amount of time.

At the end of the seven lessons, you have the option to use a Jeopardy-style review game before continuing to the culmination activity. In the culmination activity, students will represent a stakeholder or community member that has something important to share about wildfire preparedness, response, or recovery at a mock community townhall meeting. Students will each receive a character card with information to guide their presentations.

## Program Extensions

Apart from this program, there are other fire education programs fitting for Butte County elementary and middle school students. At the end of each lesson plan, you will find links to suggested programs that have lessons that connect or build on the Wildfire in the Foothills lesson you just completed. Two of these programs are FireWorks and the nature journaling REDI Jedi Master Program.

FireWorks is designed for students in grades K-12 and provides students with interactive, hands-on materials to study wildland fire. While many of the activities can be used in any ecosystem, many are applicable to specific regions. FireWorks has specialized curricula to learn about the Sierra Nevada and California Oak Woodland. Lessons can be accessed through the FRAMES website and specific lesson recommendations are linked at the end of lesson plans. <https://www.frames.gov/fireworks/home>

The REDI Jedi Master Program has eight journaling exercises to develop a sense of place and enhance situational awareness related to fire. Ready Raccoon's Great Aunt will teach students to observe the nature signs and signals that inform us of the seen and unseen forces influencing fire. If you continue through the whole program, students will end with a story zine of eight sketches forming their own fire story.

*Program available in early 2022.*

Bringing in a guest speaker is another way to increase learning and engagement with the program. Please contact the Butte County Fire Safe Council if you are interested in learning more about connecting with a subject matter expert who could speak with your class.

## Supporting Students

As Butte County residents, students in your class have been negatively impacted by wildfire and may be suffering from community or personal trauma. Student experiences could range from losing a home, person they know, or the employment of a parent, to the effects from wildfire smoke and evacuations. The lessons steer away from potentially triggering questions, photographs, and videos, but some of your students may have a difficult time. Starting lessons with a grounding activity such as stretching or physical movement, a breathing exercise, a visualization activity, or a simple game can help lower stress and begin lessons from a calm place.

It is recommended to let your school administrators know when you begin this program and have a school counselor on hand, if possible. Some students may need additional support during or after lessons. It is advised not to talk about specific past wildfires in your area and to keep discussions more general, as students may have trauma associated with a particular fire.

On the next page, you will find web resources that can support you in teaching this program and creating a safe space for your students to learn about fire.

### **Class Community Rules**

It is important that you set the tone for the program and make ground rules with your class. Creating agreed upon rules can help students feel safer and more comfortable talking about fire. Have students brainstorm ideas for rules and record them on a large piece of butcher paper. Some ideas could include, “No jokes or sarcasm about fire.” “Respectful comments only.” “It is okay to not share or to take a break.” You may want to make a signal with your students they can show you if they want to step outside or are feeling anxious. Post the class rules up front and bring the poster out each time you start the next lesson. You can add to the list as new ideas or situations arise. Revisit your rules poster before starting the more personal lessons on family preparedness and emergency response.

### **Feedback**

Finally, we would like to know who is using this program and to receive your feedback about how it went with your class, as well as recommendations for improvement. If you are willing to take our post-program survey, please email the Program Coordinator, Lauren, at [Laurendeterra@buttefiresafe.net](mailto:Laurendeterra@buttefiresafe.net).

### **Educator Resources**

FireWorks Oak Woodlands: Fire Preparedness Lessons Teacher Training Webinar  
(Recorded on YouTube)

Guest Speaker: Mackenzie Skye (Watch video minutes 11:27-44:35.)

Mackenzie is a private consultant and licensed mental health practitioner with 20-years of experience helping survivors of natural and human-made disasters.

This recorded webinar training aims to support teachers in teaching fire curricula to students who may have fire-related trauma.

<https://www.youtube.com/watch?v=R1uFHbJ6FOs>

Key Advice from Ms. Skye:

- Stay away from feelings and revisiting personal experiences and trauma. Focus on preparedness and the future and not rumination.
- Redirect students who use the lessons as an opportunity to unpack personal traumas and story tell.
- Focus on thoughts, behaviors, and future actions.
- Stay in an informational and educational role and do not take on the role of therapist.
- Refer out when needed and use mental health professionals and counselors within your school and district for students who need additional support.



**Additional Supporting Resources:**

Resources for Dealing with Wildfire Related Trauma

The National Childhood Traumatic Stress Network

<https://www.pacesconnection.com/g/sonoma-county-aces-connection/blog/resources-for-dealing-with-wildfire-related-trauma>

How to Get Started with Trauma-Informed Teaching: 6 Resources for Educators

<https://blog.edmentum.com/how-get-started-trauma-informed-teaching-6-resources-educators>

The National Childhood Traumatic Stress Network

Trauma-Informed Care

<https://www.nctsn.org/trauma-informed-care>

Centers for Disease Control and Prevention

Helping Teens Cope After a Natural Disaster

[https://www.cdc.gov/disasters/teens/helping\\_teens\\_cope.html](https://www.cdc.gov/disasters/teens/helping_teens_cope.html)

## Program Overview

### Lesson 1: Geography & Landscapes

Guiding Question: How does wildfire impact the landscapes we live in?

#### Objectives

Students will be able to:

- 1) Interpret maps by making observations and comparisons.
- 2) Explain factors that affect where plant communities are found.
- 3) Sketch and describe differences in a healthy versus unhealthy forest zone found in Butte County.

Assessment Activity: Using the Butte County Forest Health Guidebook, students make a side-by-side graphic to demonstrate characteristics of a healthy versus unhealthy forest.

### Lesson 2: Cultural Fire

Guiding Question: How do Indigenous Californians, past and present, use fire?

#### Objectives

Students will be able to:

- 1) Describe Traditional Ecological Knowledge and its importance in their own words.
- 2) Explain three or more uses of cultural fire in California.
- 3) Reflect on and share their ideas about using fire today.

Assessment Activity: Students create two Google Slides to summarize their learning about cultural fire using information from the presentation slides, the videos, or the TEK sections of the Forest Health Guidebook.

### Lesson 3: Fire Physics & Ignitions

Guiding Question: What causes wildfires?

#### Objectives

Students will be able to:

- 1) Explain how topography, weather, and fuel affect wildfire behavior.
- 2) Identify three human-caused and one natural cause of wildfire.
- 3) Explain actions that can be taken to reduce human-caused wildfire ignitions.

Assessment Activity: Students research an ignition source and create a wildfire public service announcement to reduce accidental ignitions in their area.

### Lesson 4: Community Wildfire Mitigation

Guiding Question: What actions are being taken around Butte County to build community wildfire resilience?

#### Objectives:

Students will be able to:

- 1) Explain the purpose of wildfire mitigation.
- 2) Explain the methods and desired outcomes of at least three wildfire mitigation actions.
- 3) Collaborate with a group to propose a class wildfire mitigation project.

Assessment Activity: Students work in a small group to select and present an idea for a class community service project in fire mitigation, education, or recovery.

### **Lesson 5: Fire Resistant Structures**

Guiding Question: What can be done to improve a structure's chance of surviving a wildfire?

#### Objectives

Students will be able to:

- 1) Explain defensible space through describing features of the three Home Ignition Zones.
- 2) Make recommendations to improve a structure's likelihood of surviving a wildfire by using the Firewise principles.

Assessment Activity: Students use their Firewise checklists to make observations about three photographs and write a reflection paragraph about home preparedness.

### **Lesson 6: Family Preparedness - Get Ready!**

Guiding Question: What can we do now to prepare for a wildfire close to home?

#### Objectives

Students will be able to:

- 1) Explain the steps and contents of a Family Emergency Plan.
- 2) Describe the characteristics and items of a complete Go Bag.
- 3) Communicate to their families why making a Family Emergency Plan and Go Bag are important.

Assessment Activity: Students work with a small group to make a three to five-minute how-to video about one of the key topics from the lesson. Topic options include how to make a Go Bag, the steps and importance of a Family Communication Plan, and how to make a pet/livestock preparedness plan and Go Bag.

### **Lesson 7: Wildfire Response - Get Set, Go!**

Guiding Question: What do we do if a wildfire leads to an evacuation?

#### Objectives

Students will be able to:

- 1) Describe how they will put their Family Emergency Plan into practice in the event of an evacuation warning or order.
- 2) Explain what action should be taken for each evacuation advisory term. (Evacuation Warning, Immediate Evacuation Order, Public Assembly Point, Shelter-In-Place)
- 3) List three or more resources they could use to find information or get help during a wildfire emergency.

Assessment Activity: Students reflect on the most important parts of the program and their takeaways by writing a letter to Wildfire Ready Raccoon.

### **Jeopardy-style Review Game**

### **Culmination Activity: Firewise Community Meeting**

## Glossary

Terms are listed in alphabetical order by lesson. The vocabulary box in the lesson plan lists terms in the order they appear in the lesson.

### Lesson 1: Geography & Landscapes

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**Climate**

The long-term average of weather, typically averaged over a period of 30 years. California has a Mediterranean climate with warm-hot, dry summers and mild, wet winters.

**Ecological Transition Zone**

The area where one plant community meets and changes into the next.

**Elevation**

The height above a given level, especially sea level. Butte County's elevation ranges from 60 to approximately 7,000 feet.

**Fire Adapted Community**

A human community consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire.

**Fire Hazard Severity**

A mapped area that designates zones (based on factors such as fuel, slope, and fire weather) with varying degrees of fire hazard (moderate, high, and very high). They do not take into account modifications such as fuel reduction efforts.

**Landscape**

All the visible features of an area of countryside or land.

Landscapes of Butte County: Urban, Agriculture, Grassland, Chaparral, Woodland, Mixed Conifer. More specific landscapes featured in the Forest Health Handbook: Blue Oak Woodland, Sierran Mixed Hardwood, and Mixed Conifer Woodland.

**Topography**

The physical features on Earth's surface or the technique of representing elevations of land on maps. Topography includes mountains, ridges, valleys, plateaus, or water features on the land.

**Weather**

The short-term conditions of the atmosphere.

## Lesson 2: Cultural Fire

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### **Cultural Burn**

An intended fire started and managed by Indigenous people or done with their permission and guidance.

### **Fire Suppression**

Putting out and stopping wildfire.

### **Prescribed Burn**

Intentionally set fire, also sometimes called a “controlled burn”, used to meet land management objectives.

### **Traditional Ecological Knowledge (TEK)**

Describes Indigenous knowledge of local resources developed over thousands of years. It is a system of ecological science and technology based on long-term observation, experimentation, and outcomes.

## Lesson 3: Fire Physics & Ignitions

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### **Humidity**

A quantity representing the relative amount of water vapor in the atmosphere or in a gas.

### **Ignition**

The point at which a fire starts.

### **Slope**

A surface of which one end or side is at a higher level than another. Assuming no wind or variation in fuel, fire travels faster up a slope than across flat ground or downhill.

### **The Fire Triangle: (Fuel, Heat, Oxygen)**

Fuel: Anything that burns as a solid, liquid, or gas. Fuel is characterized by its moisture content, size, shape, quantity, and the arrangement on the landscape.

Heat: Responsible for the initial ignition of fire and is needed to maintain and spread it. Heat evaporates moisture in fuels and brings it to ignition temperature.

Oxygen: Supports the chemical processes that occur during fire. At least 16% is needed in a given air mass.

### **The Fire Behavior Triangle: (Topography, Weather, Fuel)**

Topography: Includes physical land features such as mountains, plateaus, canyons, plains, and valleys. The steeper the slope, the faster fire travels.

Weather: There are three weather ingredients that can affect wildfires: temperature, wind, and moisture. Wind is the most critical factor affecting wildfire behavior.

Fuel: Fuel can include natural matter such as plants to human-made structures.

### **Wildland Urban Interface (WUI)**

The area where houses meet or intermingle with undeveloped wildland vegetation.

## Lesson 4: Community Wildfire Mitigation

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### **Mitigation**

The action of reducing the severity, seriousness, or painfulness of something.

### **Fuels Management**

Reducing fuels and their availability to feed a wildfire. Excess vegetation is managed through a combination of actions including mechanical and hand thinning, chipping, prescribed fire, and grazing.

## Lesson 5: Fire Resistant Structures

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### **Crown Fire**

Fires that burn across the tops of trees. Wildfires are much harder to control if they turn into crown fires.

### **Defensible Space**

The buffer created between a building that can burn and the grass, trees, shrubs, or any wildland area that surrounds it. This space is needed to slow or stop the spread of wildfire and it helps protect your home from catching fire, either from direct flame contact or radiant heat. It also provides fire fighters a safer space to work in when protecting structures.

### **Embers**

Small pieces of burning or glowing fuel.

### **Ember Storm**

Embers that are blown into the air and can be carried over a mile from the fire front with strong winds.

### **Firewise Guidelines**

A list of guidelines that people can use to create an ideal defensible space around their homes.

### **Home Hardening**

Efforts to prepare a house for wildfire and an ember storm. Home hardening addresses the most vulnerable components of a house with building materials and techniques that increase resistance to heat, flames, and embers.

### **Home Ignition Zones**

The three priority zones for defensible space around a structure.

Immediate Zone (0 to 5 feet around the house)

Intermediate Zone (5 to 30 feet)

Extended Zone (30 to 100 feet or property line)

### **Ladder Fuel**

Fuel that can carry a fire burning in low-growing vegetation up to the taller vegetation. This can move fire up into the tree canopy and crown where it can quickly spread to surrounding trees.

### **The North Winds**

Local, dry, seasonal winds that occur during the late summer and fall months. These strong winds travel downslope from the mountains toward the valley. The North Winds blow from the north and travel down the Sierra Nevada Mountains, heating and drying the air as it moves.



## Lesson 6: Family Preparedness – Get Ready!

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### **Family Emergency Plan**

A written plan that prepares each family member to know their role and stay connected during an emergency. Consists of both the Family Communication Plan and Action Plan.

**Family Communication Plan:** A written document that is completed during a family meeting.

The plan includes family member contact information, an out-of-town contact, a neighborhood meeting place, a regional meeting place, school information for children.

**Action Plan:** Written on the back of the Family Communication Plan, this lists a task each person is responsible for, if the emergency situation permits, before leaving the house together in the event of an evacuation.

### **Go Bag**

A Go Bag is a pre-packed bag that holds essential items for the next 72 hours. It should be light enough for one person to carry and packed in a sturdy bag that can be grabbed quickly.

## **Lesson 7: Wildfire Response – Get Set! Go!**

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### **Evacuation Shelter**

A temporary place opened to offer safety and resources for people who have evacuated from a disaster.

### **Evacuation Warning**

Alerts people of a potential threat to life and property. People who need additional time should consider evacuating at this time. Start your Family Communication Plan now to prepare for a changing situation.

### **Immediate Evacuation Order**

Requires the immediate movement of people out of an affected area due extreme danger. Due to the changing nature of the emergency, this order may be the only warning that people in the area receive. Choosing to stay could put your life in danger and obstruct the work of firefighters and rescue workers.

### **Public Assembly Point**

A temporary assembly area that provides a safe place for evacuees to assemble. People will stay here until the threat is past or evacuation routes are accessible. This is also a place for evacuees who cannot evacuate on their own and need assistance getting to a shelter. Evacuees who are capable of evacuating on their own do not need to go to Public Assembly Points unless directed by public safety officials.

### **Shelter-In-Place**

Advises people to stay secure at their current location by remaining in place. There may not be a safe evacuation route at this time.



## Lesson 1: Geography & Landscapes

### Fire on our Landscapes

**Guiding Question:** How does wildfire impact the landscapes we live in?

#### Goals:

- To build confidence in making observations and sharing ideas about fire in class.
- To highlight regional and ecological differences in Butte County landscapes.
- To learn how healthy ecosystems are shaped and maintained by fire.

#### Objectives

Students will be able to:

- 1) Interpret maps by making observations and comparisons.
- 2) Explain factors that affect where plant communities are found.
- 3) Sketch and describe differences in a healthy versus unhealthy forest zone found in Butte County.

**Subjects:** Science, Writing, Speaking and Listening, Reading, Art

**Duration:** 60 minutes

**Setting:** Classroom

#### Vocabulary:

Elevation, Fire Adapted Community, Fire Hazard Severity, Topography, Weather, Climate, Ecological Transition Zone

#### Materials and Preparation:

- Read *Forward to Educators* section on the Wildfire in the Foothills webpage.
- Butcher paper to make your Class Community Rules poster.
- Student folders to keep wildfire journals and program handouts together.
- Prepare to project the PowerPoint slideshow for *Lesson 1: Fire on our Landscapes*.
- Prepare materials for students to make their wildfire journals.  
(10 pieces of lined paper, 5 sheets of computer paper, construction paper or blank paper for a cover page)
- Butte County Forest Health Guidebook (Requested in print or accessed digitally.)

Standards:		
NGSS	Crosscutting Concepts	Patterns Scale, Proportion, and Quantity Structure and Function Stability and Change
	Science and Engineering Practices	Developing and Using Models Analyzing and Interpreting Data Constructing Explanations and Designing Solutions Obtaining, Evaluating, and Communicating Information

	Disciplinary Core Ideas	LS2.A: Interdependent Relationships in Ecosystems LS2.C: Ecosystem Dynamics, Functioning, and Resilience LS4.C: Adaptation ESS3 (A-C): Earth and Human Activity
<b>Environmental Principals and Concepts</b>		Principle 1: People Depend on Natural Systems Principle 2: People Influence Natural Systems Principle 3: Natural Systems Change in Ways that People Benefit From and Can Influence Principle 5: Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors

### Lesson Overview:

Students may begin the program with negative views and valid fears about wildfire. The introductory activity of making a T-chart to note positive and negative impacts of wildfire may quickly reveal some of these attitudes. Their lived experience in a foothill community may enforce the ideas that fire is dangerous, destructive, and uncontrollable. While fire can be those things, this is not the whole picture.

This lesson frames fire as a natural process that is part of every landscape. Fire exclusion is not a sustainable strategy for living with fire, and across California, we are seeing the consequences of decades of fire suppression. The presentation slides scaffold to talking about how fire affects the landscape you live in. The lesson focus is on impacts on vegetation and ecosystems, rather than the impacts on people.

To begin, students are shown eight slides with maps and graphics representing location, elevation, fire hazard severity, and plant communities of Butte County. While you may choose to add additional questions or skip some suggested questions, the goal is to give students many opportunities to share their observations and make connections to where they live. The lesson moves on to describe the six landscapes found in Butte County. This brief overview gives examples of how fire interacts with each landscape in the “fire factors” section. A county-wide overview is given to make the program relevant to those living outside foothill communities and demonstrate regional differences.

The student assessment activity focuses on three plant communities, or “forest zones”, that are found in the foothill and mountain regions of the county. Students will use the Forest Health Guidebook, created by the Butte County Fire Safe Council and Butte Resource Conservation District, to investigate and share findings about the blue oak woodland, Sierran mixed hardwood, and mixed conifer woodland.

## Background County Information:

From the 2020 updated Butte County Community Wildfire Protection Plan:

“Butte County is located on the eastern side of the northern Sacramento Valley and encompasses over 1.1 million acres. The county ranges in elevation from 60 feet to 7,000 feet above sea level and is divided in half with two topographical features. The Sacramento Valley section in the western portion of the county is relatively flat and is predominantly grassland and farmland. The foothills and mountainous regions of the northern Sierra Nevada and southern Cascade Mountains comprise the eastern portion of the county. This area is scattered with homes and communities intermixed amongst woodland fuels creating a serious Wildland Urban Interface (WUI) problem. These are areas where wildland fire once burned only vegetation but now burns homes as well.

Butte County has a Mediterranean climate with cool, wet winters and hot, dry summers. Precipitation is normally in the form of rain, ranging from approximately 20 to 80 inches per year, with snow in the higher elevations. The average high temperature for January is 55 degrees and for July is 96 degrees, with many days in which temperatures reach over 100 degrees.”

The full text can be found at:

<https://buttecounty.sacriver.org/cwpp/community-wildfire-protection-plan>

Pages 29-47 provide information about the fuels, topography, weather, and fire history specific to your area of Butte County.

## Procedure:

1. Make your Class Community Rules poster for the program and set expectations for talking about wildfire. (See Forward to Educators section.)
2. Explain to students: We are going to begin by learning more about the place we live. To better understand fire and how to live more safely in a fire-prone area, it is important to know about the lands that surround us. We will discover how these lands, and many of the plants found here, are adapted to live with fire.
3. Go through presentation slides for *Lesson 1: Fire on our Landscapes*. Notes are included in the speaker's notes section of the presentation, as well as here. To save space, some links and sources cited are included in the presentation notes, but not in the lesson plan notes.

This program is for sixth-grade students in Butte County.

**YOU** are part of creating a fire adapted community!

The knowledge you gain in this program will help you, your family, and your community to be more wildfire-ready.



2

In the foothills, it is not a matter of *if* a fire will occur, but *when* a fire will occur. What can we do now to be ready?

Pictured: Wildfire Ready Raccoon, the Butte County Fire Safe Council and Paradise Ridge Fire Safe Council mascot.



Make your Wildfire in the Foothills journal! You will need:

- A cover page.
- 10 pieces of lined paper.
- 5 pieces of blank paper.

3

Every lesson gives the opportunity to use journals for quick-write reflections, activity brainstorming and outlines, or assessments. Option to include a decorated cover page, table of contents, and a vocabulary page. Staple together a blank cover page, ten pieces of lined paper, and five blank pages for drawing and diagrams.

What does it mean to be a "fire adapted" community?



4

The National Wildfire Coordinating Group defines a fire adapted community as, "A human community consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire."

It takes many people working together across many fields to live as a fire adapted community. Wildfire in the Foothills will introduce many of these topics, over seven lessons. Of the topics shown in the middle ring, this program focuses on Safety & Evacuation, Resident Mitigation, and Landscape Treatments. Youth education is a key part of community preparedness and living better with fire. Students can spread important messages to their peers, families, and to a wider community audience. They can also become contributing adults if they continue residing in Butte County as they get older.

"This graphic was created by the Fire Adapted Communities Learning Network. FAC is not a one-size-fits-all approach; every community's journey to living better with fire is unique."


[Fire Adapted Communities Graphic and Facilitator's Guide](#)



5

Guiding Question: How does wildfire impact the landscapes we live in?

Make a T-chart on the whiteboard or butcher paper and brainstorm possible positive and negative effects of wildfire. Students' reactions may start out exclusively negative, pointing out the dangers to people and destruction of houses. However, some students may know about some ecosystems or species that benefit from or depend on fire. Keep the T-chart visible as you continue with the lesson and add new ideas as they arise.



When was the last time you used a map?

6

Group share:

What did you use it for? Was it a paper map? Google maps? A posted sign at a hiking trail?

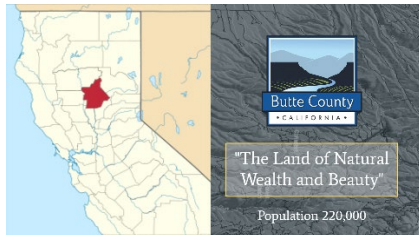


What types of information can maps tell us?

What features should be included on a useful map?

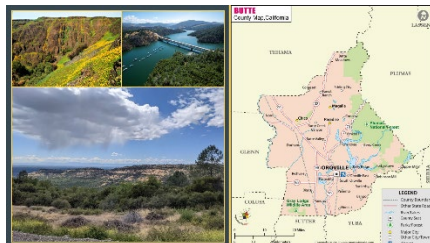
7

Pair share



8

To be more complete, what features would you add to this map that shows Butte County's location?



9

This map includes a title, legend, scale, north arrow, and labels, giving us lots more information. Take a moment to find your approximate location on the map and make some observations about your area.

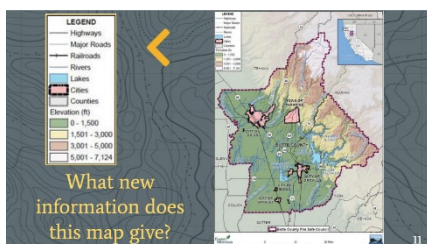
How many counties border Butte County? (6)

What is your nearest town? Approximate distance from Chico to Paradise? (10 miles, as the crow flies.)

**Topography:** The physical features on Earth's surface or the technique of representing surface areas of land on maps.

Topography includes mountains, ridges, valleys, plateaus, or water features on the land.

10



11

County Elevation

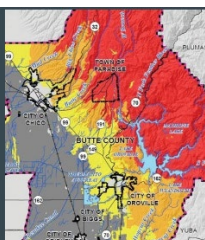
What percent of the county would you estimate is between 60-1,500 feet in elevation?

What is the highest point in Butte County? (7,124 feet on the Robert Jenkins mountain ridge)

Have you been to an area with a higher elevation than where we live? Can you remember some differences between that place and here?

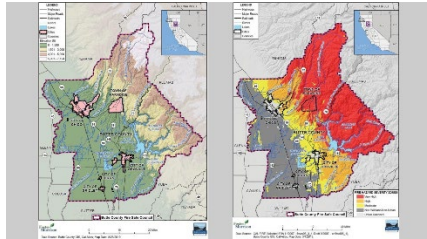
The colors on this Cal FIRE map represent Fire Hazard Severity Zones.

Red is very high and yellow is moderate.



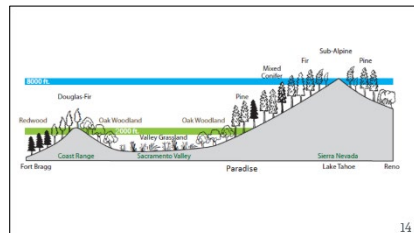
12

CAL FIRE uses various types of data to map wildfire risk and categorizes areas into Fire Hazard Severity Zones. This represents not just the size or likelihood of a wildfire, but also how much harm it could cause to people and structures. Dark gray areas are non-wildland/non-urban, and the light gray represents urban areas around the City of Chico and City of Oroville. Note: These maps are created at a general scale and do not represent efforts that may have taken place locally to reduce fuels.



13

What similarities do you notice between these two maps?  
 What connection could you make between elevation and fire hazard severity?  
 Other than elevation, can you think of other factors that could affect the fire hazard severity of an area?



14

This cross-section of California shows what plant communities are present, and at what elevation.  
 Take a moment to review California's basic topography with a quick demonstration. Invite students to make a cup shape with one hand, like they are trying to hold water in their palm. Compare their hand shape to the high and low points on the graphic.  
 Coastal Range (heel of hand), Sacramento Valley (palm), and Sierra Nevada Mountains (four fingers).  
 Where do you live in relation to the model you made with your hand?  
 Based on the graphic, which plant communities are found in your area?  
 What are some basic differences in plant structure you notice on the graphic?  
 (Short and grassy plants in the valley, leafy trees at or below 2,000 feet, and tall, needled trees at higher elevations.)

Elevation, climate, light, water, soil, and temperature all contribute to where plants can survive and how plant communities are formed on a landscape.

Every landscape has its own history and relationship with fire, which is heavily influenced by humans.

15

## Weather vs. Climate

What's the difference?

16

Quick pair share.

**Weather** reflects short-term conditions of the atmosphere.

**Climate** is the long-term average of weather, typically averaged over a period of 30 years.

California has a Mediterranean climate with warm-hot, dry summers and mild, wet winters.

17





18

Butte County is made up of these six broad landscapes.

Which landscape best describes where you live?

Note: These are general categories. The more specific zone you may live in or near, including blue oak woodland, Sierran mixed hardwood, or mixed conifer woodland, will be explored in the assessment activity.



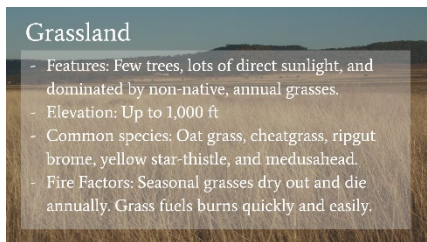
19

Although urban areas have lower wildfire risk, developments in or near wildland areas are at risk. Residents in urban areas such as Chico and Oroville that border on wildland areas should be prepared for wildfire.



20

Are there any agricultural products grown near you? If not crops, is any livestock ranged near you?



21

Non-native Mediterranean grasses spread through the grasslands and woodlands starting in the 1800's from European immigrant introduction. Non-native species do not occur naturally in an area but are introduced through accidental or deliberate human activities. These grasses are seasonally dry and highly flammable. Grass forms continuous, horizontal fuel.



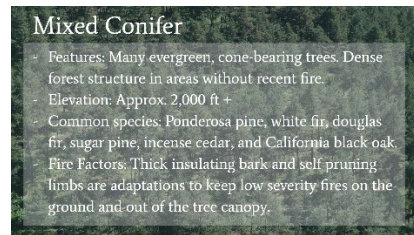
22

Fire Factors continued: Chaparral is evergreen vegetation that is found at middle elevations, covering 8.5 million acres of California. It is often uniform fuel, where the plants are the same species mix, height, and spacing. Fire can pass very quickly and burn hot through these landscapes. When a fire passes through a chaparral area, fire spreads through the shrub canopy burning the whole area. Chaparral vegetation is well adapted to fire and regenerates readily after fire, either through sprouting from stem bases or from soil-stored seed. Fire that is too frequent is harmful to this ecosystem, causing it to convert to grassland.



23

Blue oaks are the most heat and drought-tolerant oaks. Frequent, low-intensity fire helps to remove insect pests, reduces competition for light and water, and improves acorn output.



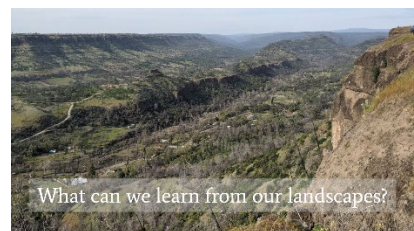
24

Fire Factors continued: Tree species that are most tolerant of fire are the ponderosa pine, incense cedar, and sugar pine. Drought stress and pests, such as bark beetles and disease, put pines at risk of die-off. Stands of dead ponderosa pine trees fill the middle and lower Sierra Nevada mountains. Thick conifer forests are at risk from high-severity fires.



25

Paradise, located at approximately 1,800 feet, is in a transition zone between the lower elevation grassy woodlands, the upper elevation conifers, and the live oak-chaparral dominant canyons.



26

Forest health, structure, and the presence of certain plants in a landscape gives us clues about that ecosystem's relationship with fire. These clues could tell you, for example, how recently a fire has burned there, which species benefit from or are sensitive to fire, or if a lack of fire has made the forest unhealthy. Knowing how our landscapes have been shaped by fire in the past, helps us to live more sustainably and safely with fire in the future.

Picture: Taken from the Paradise lookout along Skyway Road.



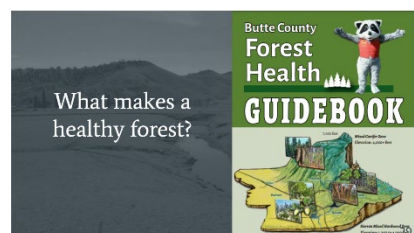
27

Fire is a natural and critical process for maintaining healthy and resilient forests. How are humans a part of this natural process? We will learn about this by using the Forest Health Guidebook for the lesson activity.



28

Review key words from the lesson and check for understanding.

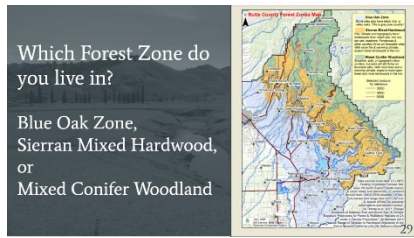


29

Access the Forest Health Guidebook online:

<https://buttefiresafe.net/forest-health-guidebook/>

Contact the Butte County Fire Safe Council for a physical copy for your students.



30

### Assessment:

Using the Butte County Forest Health Guidebook, students make a side-by-side graphic to demonstrate features of a healthy versus unhealthy forest. Contact the Butte County Fire Safe Council if you would like a physical guidebook for each student. You may want to save this activity for another class period or have students start it as homework. To access the Forest Health Guidebook online, go to:

<https://buttefiresafe.net/forest-health-guidebook/>

The Forest Health Guidebook is intended to give Butte County landowners information and recommendations to create a forest management plan, to improve forest health and reduce wildfire risk. The handbook is filled with photographs, art, and student-friendly examples of healthy forests. Each forest section contains background information, signs of health, strategies for maintaining or improving health, proper care after a wildfire, Traditional Ecological Knowledge connections, and a local success story. It also demonstrates the differences between good fire and harmful fire, and the impact each could have on a forest.

Students will review and base their activity on one section:

- Blue Oak Zone (Pages 2-10)
- Sierran Mixed Hardwood (Pages 11-19)
- Mixed Conifer Woodland (Pages 20-28)

### Comparing Forest Health

Students make a side-by-side sketch to compare a healthy versus unhealthy forest. In addition to illustrations, students will bullet point or describe elements for each side. The guidebook depicts examples of healthy and unhealthy forests by illustrating the species present, forest density and structure, evidence of past fires, or relationships with animals.

Option 1: The whole class focuses on the forest zone closest to where you live. The activity could also be shortened by working with a partner, with one student illustrating healthy and the other unhealthy. If you have an example on your school campus, your class could head outside to sketch and discuss whether they think the area is healthy or unhealthy.

Option 2: Divide the class into three and have one-third of your class learn about each forest zone. After students are finished with their diagrams, make groups of three with a student

representing each zone. Students share their findings and compare similarities and differences between forest zones.

### Evaluation:

Forest Comparison	Good	Fair	Poor
Visual	Students make an illustration and include three or more written points about forest health.	Students make an illustration and include one or two written points about forest health.	Sketches do not include written points about forest health.
Comparison and Sharing	Students can give three or more examples of a similarity or difference between forest zones.	Students can give one or two examples of a similarity or difference between forest zones.	Students cannot give an example of a similarity or difference between forest zones.
Explanation	Students can vocalize two or more examples of how fire can improve the health of their forest zone.	Students can vocalize one example of how fire can improve the health of their forest zone.	Students cannot vocalize an example of how fire can improve the health of their forest zone.

### Lesson Extension Recommendations:

REDI Jedi Master Program

Lesson 1: Landscape Patches, Patterns & Fire

*Coming soon! Available Early 2022.*

FireWorks

Learn more about a plant, animal, or fungus in your local ecosystem and its relationship with fire.

Northern California Oak Woodlands Curriculum

M.1.2 Who Lives Here? Adopting a Plant, Animal, or Fungus

<https://www.frames.gov/fireworks/curriculum/norcal-oak-woodlands>

Sierra Nevada Curriculum

M11 Who Lives Here? Adopting a Plant, Animal, or Fungus

<https://www.frames.gov/catalog/24552>



## Lesson 2: Cultural Fire

### Examining Relationships with Fire

**Guiding Question:** How do Indigenous Californians, past and present, use fire?

**Goals:**

- Introduce students to cultural burning and the long-standing relationship between people and fire.
- Show some of the ways Indigenous Californians use fire to maintain safe and healthy ecosystems.

**Objectives**

Students will be able to:

- Describe Traditional Ecological Knowledge and its importance in their own words.
- Explain three or more uses of cultural fire in California.
- Reflect on and share their ideas about using fire today.

**Materials and Preparation:**

- Prepare PowerPoint slideshow for *Lesson 2: Cultural Fire*.
- Students will need their wildfire journals in class.

**Subjects:** Science, Writing, Speaking and Listening

**Duration:** 60 minutes

**Setting:** Classroom

**Vocabulary:**

Traditional Ecological Knowledge, Cultural Burn, Prescribed Burn, Fire Suppression

Standards:		
<b>NGSS</b>	Crosscutting Concepts	Cause and Effect Scale, Proportion, and Quantity Structure and Function Stability and Change
	Science and Engineering Practices	Obtaining, Evaluating, and Communicating Information
	Disciplinary Core Ideas	LS2.C: Ecosystem Dynamics, Functioning, and Resilience LS2.D: Social Interactions and Group Behavior
<b>Environmental Principles and Concepts</b>		Principle 1: People Depend on Natural Systems Principle 2: People Influence Natural Systems Principle 3: Natural Systems Change in Ways that People Benefit From and Can Influence



		Principle 5: Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors
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### Lesson Overview:

This lesson is only an hour-long introduction to a complex topic, with much more to delve into. If you and your students are interested in learning more about cultural fire and want to extend the lesson, multiple resources are recommended at the end. You are also encouraged to participate in resources, talks, or events hosted by your local Indigenous groups. You may be able to make contact to learn more about cultural fire and Traditional Ecological Knowledge (TEK) through CSU Chico or the Chico Traditional Ecological Stewardship Program. “The Chico Traditional Ecological Stewardship Program introduces Native and non-Native local community members to Indigenous land management concepts and ecological stewardship practices. This forms a TEK-certified workforce who can perform much-needed ecosystem restoration, climate change adaptation, disaster recovery and wildfire mitigation work.”

An important topic that this lesson does not cover is the impacts of colonization on cultural burning practices. The ban on cultural burning, and negative impacts to Indigenous communities, has a substantial effect on the environmental challenges and rise in catastrophic wildfires we are experiencing today. To learn about this topic, and some of the events from the 1700s to today that has changed California’s fire regime, lesson *M.1.5 Fire History of the Oak Woodlands* (FireWorks: Northern California Oak Woodlands), is linked with the lesson extensions.

Around the world, Indigenous people have used fire since time immemorial to improve their environments and for cultural reasons. This lesson focuses on some of the uses of fire by Indigenous Californians, specifically those living in the oak woodland and the Sierra Nevada regions. Students will be introduced to cultural burns and the benefits of using frequent, low-intensity fire. The introduction of video one, *Living Traditions- Living Lands*, features TEK, or the Indigenous knowledge of local resources developed over thousands of years, by Indigenous educators and fire practitioners in the Chico area.

Tribes throughout California have unique relationships with fire, using it in different ways to produce desired outcomes for humans and ecosystem health. Some of the benefits of cultural burning discussed in the lesson include promoting desired habitats and species, increasing favored resources, altering plant structure for materials, and improving safety and travel. The second video, *Tending the Wild*, explores how cultural burning is being practiced today and what lessons it holds for the future of the forest. The video features two tribes, the North Fork

Mono Tribe, and the Cold Springs Rancheria of Mono Indians, who are working to bring fire back to the land.

At the end of the lesson, students reflect on viewpoints about fire and compare their views with what they learned about cultural fire. Students are encouraged to share with, “I used to think, now I think, I still have questions about”, prompts. Students then summarize their learning about cultural fire by making two presentation slides to submit in class.

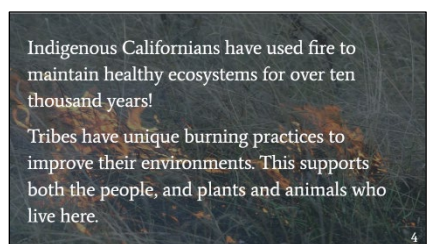
### Procedure:

Begin presentation slides for Lesson 2.



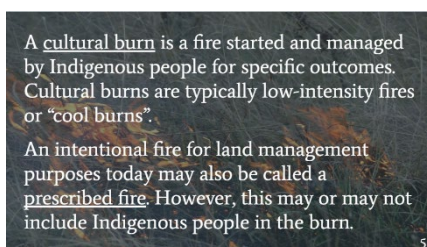
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The Northwestern Maidu were the earliest known residents of what is today, Butte County. Their descendants include the Tribes of: Berry Creek Rancheria of Maidu Indians, Enterprise Rancheria of Maidu Indians of California, KonKow Valley Band of Maidu, Mechoopda Indian Tribe of the Chico Rancheria, and Mooretown Rancheria of Maidu.



4

How fire is applied and the desired outcomes, depend on factors like the area's topography, climate, season, species present, the area's fire history, and human needs. People and plant communities have co-evolved with fire in California.



5

Cultural burns have less heat, less plant die-off, and the fire stays within people's control.



6

What do you notice about this photo?  
What do you wonder about the scene?  
Does this picture reveal what might these people be thinking or feeling about fire?

(Photo: Alysha Beck/UC Davis)

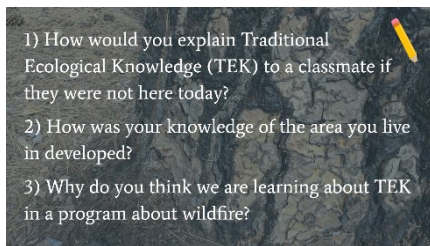
UC Davis professor of Native American studies Beth Rose Middleton Manning throws deergrass onto a burning pile as she and students in the “Keepers of the Flame” class take part in a cultural burn at the Tending and Gathering Garden at the Cache Creek Nature Preserve in Woodland.



7

Traditional Ecological Knowledge (TEK) describes Indigenous knowledge of local resources developed over thousands of years. The first seven minutes (of this 27-minute video) introduces Traditional Ecological Knowledge within a Chico area context and peoples' personal connections with TEK. The video will automatically stop after seven minutes.

Link to video: [Traditional Ecological Knowledge](#)  
Living Traditions- Living Lands



8

Journal reflection.

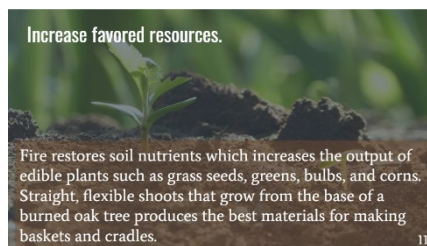


9



10

Frequent, low-intensity fire improves ecosystems by making patches of plants of different ages, sizes, and species. This creates a rich mixture of resources for food, clothing, tools, and medicine.



11

Fire restores soil nutrients which increases the output of edible plants such as grass seeds, greens, bulbs, and corns. Straight, flexible shoots that grow from the base of a burned oak tree produces the best materials for making baskets and cradles.



12

The black oak's large, round acorns were a staple food source for the Maidu. Harvested acorns were dried, leached of tannins, ground into flour, and eaten as a mush or cooked into breads.

According to the Mechoopda Tribe, "an abundant annual crop of acorns might provide enough food for an entire year, and due to its hard shell, could often be stored for up to two years in time."

Using fire to remove understory shrubs made collecting acorns easier once they fell to the ground. This also reduces the trees' competition for water. Burning helps oak trees by decreasing insect pests, disease, and undergrowth fuels that could carry damaging flames to the canopy. This gave trees the energy to produce a larger, and higher quality acorn batch.

Mechoopda Indian Tribe of the Chico Rancheria, Culture  
<https://www.mechoopda-nsn.gov/culture/>





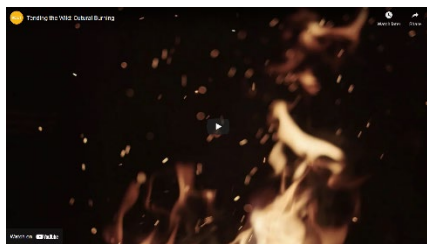
13

Image: Finely coiled presentation bowl by Maidu weaver, Mary Kea'a'ala Azbill (1864-1932), made from sedge root, briar root, and willow shoots.



14

Image: Miwok Woman Gathering  
A State of Change: Forgotten Landscapes of California  
Laura Cunningham

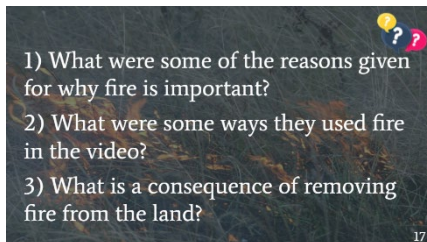


16

Slide 15: Preview of video questions.

"In this video, we explore how cultural burning is being practiced today and what lessons it holds for the future of the forest. We visit the area just south of Yosemite National Park where two tribes are working to bring fire back to the land, the North Fork Mono Tribe and the Cold Springs Rancheria of Mono Indians."

Tending the Wild - 18-minute video from KCET-TV (2016)



17



18

Cultural burns still happen locally in Butte County. This photo is of a cultural burn in the oak woodlands at the Big Chico Creek Ecological Reserve in 2015. Photo courtesy of Dr. Don Hankins.



19

Environmental Principal and Concept #5: "Decisions affecting resources and natural systems are complex and involve many factors. The process of making decisions about resources and natural systems, and how the assessment of social, economic, political, and environmental factors has changed over time."

The table on the next four slides show contrasting views of fire. Possible discussion of each point. What themes from today's lesson do students see represented in these views?

War on fire.	Work with the flow of natural processes.
Wildfire is destructive.	Wildfire is a necessary natural process.
Control wildfire on the landscape.	Learn to live with fire on fire-adapted landscapes.
Prevent and suppress fires.	Create fire-resilient human and natural communities.


20

20-23

Slide 23: Fire suppression is the act of putting out and stopping wildfire.

**WARNING:**

Intentional and accidental wildfires are extremely dangerous. Cultural and prescribed burns are practiced by experts with years of experience and training with fire. These fires are set under the right conditions, with permission, and with the proper training and equipment. **NEVER** intentionally start a wildfire or attempt a prescribed burn.



24

Fire Safety Clarification: Do NOT start wildfires.

\*NEVER is referring to them as a young student. If they go on to be fire practitioners and go through the proper training, great!

Make sure this safety point is very clear with students before moving on. Some definitions to help with the distinctions:

A **wildfire** is an unplanned, unwanted, uncontrolled fire.

**Arson** is the criminal act of deliberately setting fire to property.

**Prescribed fire** is the controlled application of fire to the land for management purposes.

A **cultural burn** is fire set and managed by Indigenous People for ecological or cultural outcomes.

**Key Word Review** 🔑

- Cultural Burn
- Prescribed Fire
- Traditional Ecological Knowledge (TEK)
- Fire Suppression

24

25



26

Final Discussion:

Do students have new thoughts about fire after the lesson? If not, do they recall any new thoughts after the first lesson about healthy forests?

### Assessment:

Students create two Google Slides to summarize their learning about cultural fire. Students can also use PowerPoint or another presentation program you are familiar with. Students can use photos, art, and information from the internet to support their ideas. They should include three or more ideas from the presentation slides, the videos, or the TEK sections of the Forest Health Guidebook (If you used it in lesson 1). Give 15-20 minutes for students to complete the activity and have them submit their slides.

**Evaluation:**

	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
<b>Presentation Slide(s) Summary</b>	Students create two slides that summarize their learning with three main ideas from the lesson's resources.	Students create one or two slides that summarize their learning with two main ideas from the lesson's resources.	Students create one slide that summarizes their learning with one main idea from the lesson's resources.

**Lesson Extension Recommendations and Supporting Resources**

FireWorks: Northern California Oak Woodlands

Lesson: M.1.5 Fire History of the Oak Woodlands

Learn about some of the methods scientists use to build historic fire regimes, fire regimes of California's oak woodlands, and European settlers' impact on cultural burning practices.

<https://www.frames.gov/fireworks/curriculum/norcal-oak-woodlands>

Science Friday: How Indigenous Burning Practices Could Prevent Massive Wildfires

09/25/2020 (17:26)

This segment is part of The State of Science, a series featuring science stories from public radio stations across the United States. This story, by Ezra David Romero, originally appeared on Capital Public Radio.

Listen here: <https://www.sciencefriday.com/segments/indigenous-fire-prevention/>

Explore: A History of California Wildfires

Interactive fire map. Pre-1950-2019

<http://projects.caprado.org/california-fire-history/#5.56/38.529/-121.633>

Learn about the history and evolution of Smokey Bear.

How did the U.S. government influence the public's perception of fire?

How does this compare with cultural burning and Indigenous Peoples' views of fire?

Story of Smokey: <https://smokeybear.com/en/smokeys-history?decade=1940>

Learn more about the Chico Traditional Ecological Stewardship Program.

<https://tekchico.org/>

Read about the UC Davis students and faculty who partnered with regional tribes to take part in cultural burns in Northern California as part of a UC Davis Native American studies course. (Photo analysis is from this article. The article is above a 6<sup>th</sup>-grade reading level.)

#### RETHINKING WILDFIRE

Cultural Burning and the Art of Not Fighting Fire

<https://climatechange.ucdavis.edu/news/rethinking-wildfire/>

Learn about the Indigenous People's Burning Network and the Indigenous Tribes that are revitalizing their traditional fire practices today.

<http://www.conservationgateway.org/ConservationPractices/FireLandscapes/Pages/IPBN.aspx>



## Lesson 3: Fire Physics & Ignitions

### Examining Wildfire Causes and Preventions

**Guiding Question:** What causes wildfires?

**Goals:**

- To introduce students to the Fire Triangle and the Fire Behavior Triangle.
- To build awareness of natural and human-caused wildfire ignition sources.
- To empower students to take an active role in community education by sharing their knowledge of how to reduce human-caused ignitions.

**Objectives**

Students will be able to:

- 1) Explain how topography, weather, and fuel affect wildfire behavior.
- 2) Identify three human-caused and one natural cause of wildfire.
- 3) Explain actions that can be taken to reduce human-caused wildfire ignitions.

**Materials and Preparation:**

- Prepare materials for students to create a wildfire public service announcement (PSA). Depending on the format chosen, this could be materials to make a poster, flyer, or sticker. It could also be the equipment to record, edit, and share a short video or audio message.
- Prepare PowerPoint slideshow for *Lesson 3: Fire Physics & Ignitions*.
- Students will need their wildfire journals in class.

**Subjects:** Science, Listening and Speaking, Writing, Art (optional)

**Duration:** 60 minutes  
(Not including time to make final PSA.)

**Setting:** Classroom

**Vocabulary:**

The Fire Triangle:

(Fuel, Heat, Oxygen)

The Fire Behavior Triangle:

(Topography, Weather, Fuel)

Humidity, Slope, Wildland Urban

Interface, Ignition

Standards:		
<b>NGSS</b>	Crosscutting Concepts	Stability and Change Cause and Effect Energy and Matter
	Science and Engineering Practices	Analyzing and Interpreting Data Constructing Explanations and Designing Solutions Obtaining, Evaluating, and Communicating Information
	Disciplinary Core Ideas	PSI.B Chemical Reactions ESS2.D Weather and Climate ESS3.B Natural Hazards

		ESS3.C Human Impact on Earth Systems ESS3.D Global Climate Change
<b>Environmental Principles and Concepts</b>		Principle 2: People Influence Natural Systems Principle 3: Natural Systems Change in Ways that People Benefit From and Can Influence Principle 5: Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors

### Lesson Overview:

Students are introduced to fire physics and behavior by talking about the points of the Fire Triangle and the Fire Behavior Triangle. The Fire Triangle is a simple way of understanding the elements of fire. The sides of the triangle represent the interdependent ingredients needed for fire: heat, fuel, and oxygen. The Fire Behavior Triangle includes the three factors of topography, fuel, and weather. This lesson gives a brief introduction to these two topics, with FireWorks lessons recommended for extended learning and opportunities to use fire in demonstrations and experiments.

This lesson introduces environmental and human factors in Butte County that contributes to the area's high wildfire severity. One factor is the wildland urban interface (WUI), where housing meets or intermingles with wildland areas, putting many communities at high risk. Students learn about sources of wildfire ignitions, which are largely human-caused. Human-caused fires could be the result of intent (arson), errors (unattended campfire), or accidents in human-built infrastructures or technologies (powerline failure). After learning about the most common ignition sources in Butte County over ten years, students assess sample PSAs from campaigns working to reduce accidental wildfire ignitions.

For the assessment activity, students pick a wildfire ignition source and do an independent study to learn more about it. Students then create an educational PSA, independently or in a small group. Students present their creations to the class and explain the message they think everyone in their community should be aware of. Your class is encouraged to share their work with the Butte County Fire Safe Council by emailing links or attachments to [Laurendeterra@buttefiresafe.net](mailto:Laurendeterra@buttefiresafe.net). Selected PSAs can be featured on our social media and website or used in future community education campaigns.

### Procedure:

1. Explain to students: We have learned how fire is an essential part of healthy ecosystems and how humans play an important role in maintaining fire in the landscape. Fires that are intentionally started for land management and cultural reasons need to be done correctly, with a strong knowledge of that ecosystem, environmental conditions, and fire safety. If done properly, these fires typically do not turn into dangerous wildfires. We will learn more about intentional, prescribed fire in a later lesson, but today we will



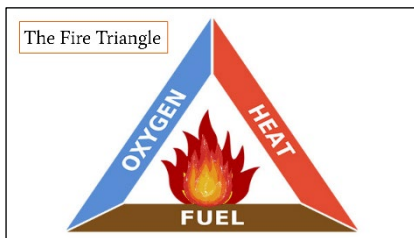
focus on the fires that are started accidentally and what can be done about this problem.

2. Go through presentation slides for *Lesson 3: Fire Physics & Ignitions*.



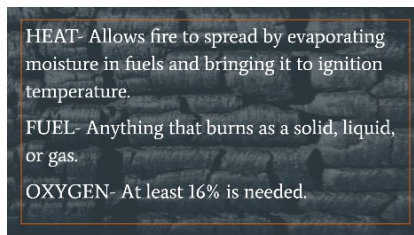
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Discussion: Students share previous knowledge they have about what a fire needs to burn. Guide them to think about three essential things that a fire could not start or continue without.



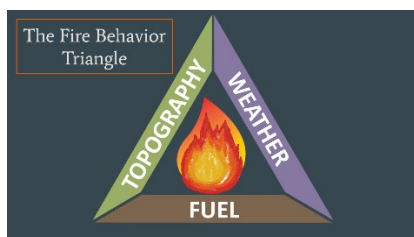
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The Fire Triangle is a simple way of understanding the elements of fire. The sides of the triangle represent the interdependent ingredients needed for fire: heat, fuel, and oxygen. For a simple example, invite students to think of a burning candle. Where does the burning candle get the heat to light from? What is the fuel burned? How might oxygen be added or taken away from the candle?



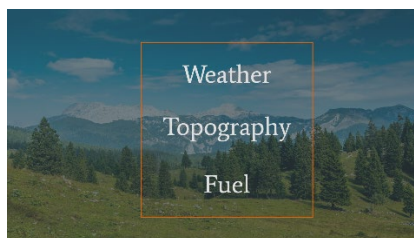
5

A **heat** source is responsible for the initial ignition of fire and is needed to maintain and spread it. Heat allows fire to spread by drying and preheating nearby fuel and warming surrounding air. **Fuel** is characterized by its moisture content, size, shape, quantity, and the arrangement on the landscape. **Oxygen** supports the chemical processes that occur during fire. When fuel burns, it reacts with oxygen from the surrounding air, releasing heat and generating combustion products (gases, water, smoke, embers).



6

Three factors that determine fire behavior are topography, weather, and fuel. Depending on these factors, a fire can quickly burn out or turn into a large wildfire. There are three **weather** ingredients that can affect wildfires: temperature, wind, and moisture. Wind supplies the fire with additional oxygen, dries out fuel, and pushes fire across the land at a faster rate. Wind is the most critical factor affecting wildfire behavior. Moisture, in the form of humidity and precipitation, can slow the fire down and reduce its intensity. The higher the relative humidity, the lower the temperature, and the less likely fuel is to dry out and ignite. **Topography** includes physical land features such as mountains, plateaus, canyons, plains, and valleys. The steeper the slope, the faster fire travels. Fire preheats uphill fuel from rising smoke and heat. **Fuel** is the common denominator of both fire triangles. Depending on the plant species present, vegetation fuels will influence fire behavior differently.



7

### How could each factor affect a wildfire?

- Winds of 40 mph in September.
- A day with 30% relative humidity.
- Cool overnight temperatures of 50 ° F.
- A flat meadow with green grass and blue oak trees.
- A 30 degree slope with dead ponderosa pine trees.

8

Review the two fire triangles by thinking about the following:  
Which factors could lead to the highest severity fire?  
Which factors could support firefighters if they were trying to stop a wildfire?

### What factors increase Butte County's wildfire severity?

- Mediterranean climate with seasonal drought
- Low humidity with high temperatures in summer and fall
- Topography with 60 to 7,000 foot elevation range
- Plants that dry out in the summer, some non-native
- Seasonal dry north winds
- Wildland Urban Interface (WUI) areas

9

### What is a Wildland Urban Interface?

The area where houses meet or intermingle with undeveloped wildland vegetation.

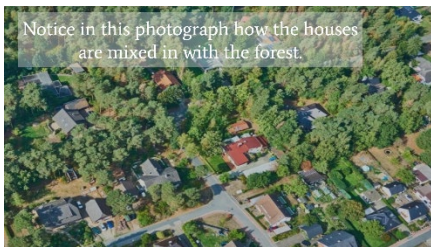
10

WUI pronounced: "Woo-E". Notice in this photograph how a fire burned right up to the edge of a housing development that meets the wildlands.

#### WUI statistics from the U.S. Fire Administration (As of 2021)

- 46 million residences in 70,000 communities in the United States are at risk for WUI fires.
- California is the state with the greatest number of houses in the WUI: an estimated 30-45%.
- The WUI area continues to grow by approximately 2 million acres per year.

Notice in this photograph how the houses are mixed in with the forest.



11

This is an example of WUI "intermingling". The importance of defensible space will be the focus of Lesson 5: Fire Resistant Structures.

What are some sources that could ignite a wildfire?

List in your journal as many as you can think of.

12

In past lessons, you have learned how people, past and present, use fire as a tool to manage more fire-safe and healthy landscapes. This does not include accidental wildfire ignitions, which extends the fire season and can cause great harm. An ignition is the point at which a fire starts.

Student quick write: What are some sources that could ignite a wildfire?

Starting a journal list will set-up students to pick a wildfire PSA topic at the end of the lesson.



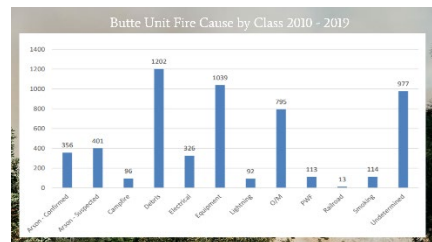
Perhaps you thought of some of these...

- ☐ Unattended campfires
- ☐ Burning debris piles
- ☐ Equipment malfunction
- ☐ Discarded cigarettes
- ☐ Arson
- ☐ Fireworks
- ☐ Playing with matches
- ☐ Downed power lines
- ☐ Lightning
- ☐ Heat from vehicles
- ☐ Escaped prescribed fire
- ☐ Volcanic activity
- ☐ Car crashes



13

How do you think most wildfires start in Butte County? (Not the sources of the largest fires, but the sources that occur most often.)



14

From Butte County Community Wildfire Protection Plan p.82

<https://buttecounty.sacriver.org/cwpp/butte-county-cwpp-report>

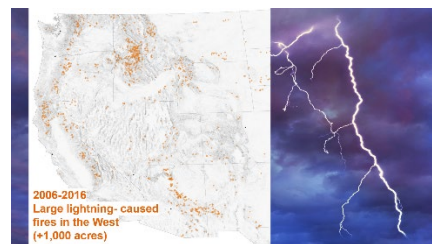
1) Debris burning 2) Equipment 3) Undetermined  
O/M= Operations and Maintenance

Nearly **85%** of wildland fires in the United States are caused by humans.

What's The Leading Cause Of Wildfires In the US? Humans  
NPR All Things Considered (Feb, 2017)  
3-minute listen

[Listen Here](#) 

15



17

Lightning strikes are the primary natural cause of wildfire. Notice where the large lightning-caused fires are clustered on the map, in rural areas with higher elevations. These fires take longer to respond to because of their remoteness and they start in high fuel areas.

"Climate change is a major factor in the growing impact of lightning strikes, because these areas of the West are becoming more dried out. A lightning fire that might not have spread so quickly decades ago leaps across the landscape of dry vegetation."  
-New York Times (Map taken from article linked in slide notes.)

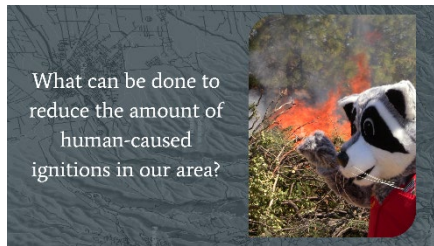


18

"Hot and dry. These are the watchwords for large fires. While every fire needs a spark to ignite and fuel to burn, the hot and dry conditions in the atmosphere determine the likelihood of a fire starting, its intensity and the speed at which it spreads. Over the past several decades, as the world has increasingly warmed, so has its potential to burn."

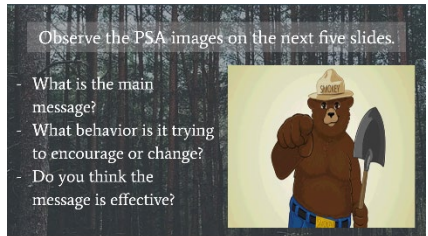
-Ellen Gray, NASA's Earth Science News Team

Additionally, decades of fire suppression in California has led to fuel build-up which increases fires' size and intensity.



19

We can't stop lightning, but there are precautions people can take to reduce the likelihood they start an accidental wildfire.



20

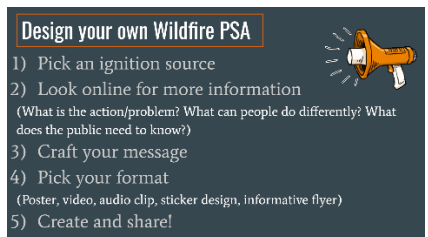
(Five examples of wildfire PSAs, slides 21-25.)



26

Another way to reach people is through video or audio messages. Example: One Less Spark Campaign public service announcements. On their website you can hear 14 examples of 30-second audio PSAs in English and Spanish.

[One Less Spark Campaign Toolkit](#)



28

Resources for learning more about ignitions:

(Burning Debris, Equipment Issues and Unruly Engine Sparks, Lit Cigarettes, Unsupervised Activities, Unattended Campfires)

<https://science.howstuffworks.com/nature/natural-disasters/5-ways-wildfires-start.htm>

One Less Spark PSAs

<https://www.readyforwildfire.org/prevent-wildfire/one-less-spark-campaign/one-less-spark-campaign-toolkit/>

Smokey Bear- Prevention How-To's

<https://www.smokeybear.com/en/prevention-how-tos>

**Assessment:** Students research an ignition source, create a wildfire PSA, and share their work to reduce accidental ignitions in their area.

1. Students pick a wildfire ignition source. It may be one they listed earlier in their journal, or a topic shown in one of the PSA examples.
2. Students do independent research through reading articles or reviewing one of the suggested websites to find out more information about the ignition source they picked. Research does not have to be about a specific wildfire started in Butte County. It may be

better to avoid researching recent fires in your area, which could be traumatic for students to re-visit.

3. Students brainstorm in their journals by responding to the following questions (Slide 29)
  - What is the action or situation that could lead to an accidental wildfire?
  - What can be done to prevent this from happening and/or what behavior should be changed?
  - Why is it important that people are aware of this topic?
  - What format would I use for my PSA and why is this an effective method for reaching people?  
(Poster, flyer, sticker, logo, video, audio, or social media campaign.)
4. Students make a sketch or outline of what their PSA will include. Students then create their products, either in class or at home.
5. Students share their final product with a one-minute presentation to the class or a small group.

#### Evaluation:

Wildfire PSA Activity	Good	Fair	Poor
Brainstorm and Outline	Students fully answered all four questions and made a complete sketch or outline in their journal.	Students partially answered the questions or had an incomplete sketch or outline.	Students answered two or less of the questions and did not include a sketch or outline.
Final Product	Students created a wildfire PSA product that provides meaningful information and visuals about an ignition source.	Students created a wildfire PSA product, but it may be missing useful information, or it is visually incomplete.	Students created a product that does not relate to wildfire ignitions or provides inaccurate information.
Sharing	Students can confidently explain the ignition source behind their PSA and their main message.	Students can adequately explain the ignition source behind their PSA and their main message.	Students cannot explain the ignition source behind their PSA or their main message.

**Lesson Extension Recommendations:**

FireWorks: Northern California Oak Woodlands

The Fire Physics lesson cycle has six lessons that use fire in experiments and demonstrations.

<https://www.frames.gov/fireworks/curriculum/norcal-oak-woodlands>

FireWorks: Fire in the Sierra Nevada

M08: Fire Behavior, Fire Weather, and Climate

<https://www.frames.gov/catalog/24549>

REDI Jedi Master Program Lessons

Lesson 4: Terrain, Heat Transfer & Rate of Spread

Lesson 5: Weather & Fire Behavior

Lesson 6: Plant Moisture & Fire Combustion

*Coming Soon! Available Early 2022.*



## Lesson 4: Community Wildfire Mitigation

### Local Programs and Actions Making a Difference

**Guiding Question:** What actions are being taken around Butte County to build community wildfire resilience?

**Goals:**

- To show students examples of what wildfire mitigation looks like in practice.
- To give students confidence that people are working together to make Butte County more resilient to future wildfires.
- To encourage students to think about the ways they can contribute to making their home, school, or larger community more fire-safe.

**Objectives:**

Students will be able to:

- 1) Explain the purpose of wildfire mitigation.
- 2) Explain the methods and desired outcomes of at least three wildfire mitigation actions.
- 3) Collaborate with a group to propose a class wildfire mitigation project.

**Materials and Preparation:**

- *Community Service Project Ideas*, from the National Fire Protection Association's TakeAction teen program. Print or have devices to access the packet online.  
<https://www.nfpa.org/-/media/Files/Public-Education/Campaigns/TakeAction/TakeActionProjectIdeas.ashx>
- Prepare PowerPoint slideshow for *Lesson 4: Community Wildfire Mitigation*.
- Students will need their wildfire journals in class.

**Subjects:** Listening and Speaking, Writing

**Duration:** 60 minutes

**Setting:** Classroom

**Vocabulary:**

Mitigation  
Fuels Management

Standards:		
<b>NGSS</b>	Crosscutting Concepts	Cause and Effect Stability and Change
	Science and Engineering Practices	Asking Questions and Defining Problems Engaging in Argument from Evidence Analyzing and Interpreting Data
	Disciplinary Core Ideas	ESS3.B Natural Hazards ESS3.C Human Impact on Earth Systems LS2.A: Interdependent Relationships in Ecosystems

		LS2.C: Ecosystem Dynamics, Functioning, and Resilience
<b>Environmental Principles and Concepts</b>		Principle 2: People Influence Natural Systems Principle 3: Natural Systems Change in Ways that People Benefit From and Can Influence Principle 4: There are no Permanent or Impermeable Boundaries that Prevent Matter from Flowing Between Systems Principle 5: Decisions Affecting Resources and Natural Systems are Complex and Involve Many Factors

### Lesson Overview:

Students learn about the important work being done in wildfire mitigation around Butte County. This lesson features some of the organizations and projects that reduce the community's risk from wildfires. After brainstorming what they already know about ways to reduce the severity of wildfires, students add to a chart summarizing new learning as the lesson progresses.

Organizations and local mitigation activities are featured through five short videos, filmed around Butte County in 2021. Video topics include the Butte County Fire Safe Council, CAL FIRE, fuels management, grazing, and prescribed fire. To break up the videos, students will add to a chart in their journals or on the whiteboard about the action and desired outcomes for each topic.

The video series ends by viewing Wildfire Ready Raccoon's music video, released in April 2021. This video, while fun and with a catchy tune, introduces important concepts about defensible space and home preparedness, which will be the focus of the next lesson. Education is essential to the BCFSC's mission and is pursued through community engagement with Wildfire Ready Raccoon and youth outreach.

At the end of the lesson, students work in a small group to suggest a wildfire mitigation project the whole class could participate in. Students will present their project proposal to the class, leading to the option of getting involved in a real class mitigation project.

### Procedure:

1. Start presentation slides for *Lesson 4: Community Wildfire Mitigation*. Share the opening slide that reads, "There will always be fire on the landscape. We can't always control when and where, but we can be prepared." Explain that in this lesson we are going to learn about the actions happening all around us to make our community more fire resilient. All of us, from fire experts, to homeowners, to students, are a part of this important challenge and there are actions everyone can take to be wildfire ready. We

will learn about some of those community-wide actions making a difference in this lesson.

## 2. Continue through the presentation slides.



4

Have you seen anything that looks like this happening around us?



5

Mitigation definition on next slide. (6)

Mitigation:

The action of reducing the severity, seriousness, or painfulness of something.



7

Have each student make a mind map in their journal. Add in ideas or actions they have seen or already know about. The pictures from slide four might remind them of things they have seen. Share ideas after two minutes.

Chart what you learn in the upcoming videos.

Name of mitigation action/program	What is being done?	What is the desired outcome?
Example: Youth Education: Wildfire in the foothills	Educate more Butte County 6th-graders about how they can help their community and family be more fire-safe.	Butte County residents are well prepared and stay safe during a wildfire.

8

Set up charts in student journals for video segment notes and discussion. There is no need to fill in the example. As the videos progress, students can volunteer answers to fill in a class chart on the whiteboard, in addition to their journals.

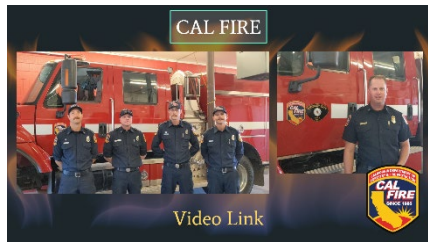


9

Fire Safe Councils are grassroots, community-led organizations that mobilize residents to protect their homes, communities, and environments from catastrophic wildfire.

Video Length: 5:54





10

Meet the CAL FIRE team at Gridley Station 74 and learn about some of the equipment and methods firefighters use to protect and defend our communities. They also give some tips about what you can do to be prepared for a fire.

Video Length: 5:30



11

Snapshots of what is ahead.



12

Visit an active project in Magalia, with BCFSC Assistant Director Taylor Nilsson, to witness how mechanical thinning and chipping contributes to healthier and more fire-safe forests.

Video Length: 5:04

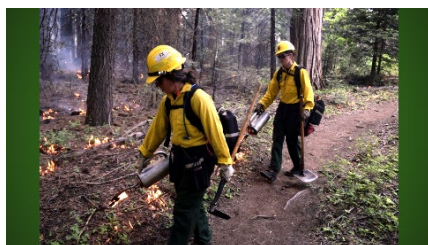


13

"A herd of 350 to 400 goats from Hanski Family Farms LLC were used to successfully reduce hazardous fuels in nearly five acres near Lake Oroville. The California Department of Water Resources (DWR) partnered with the Butte County Fire Safe Council on this grazing project to reduce the fire risk from grasses, leaves, invasive and non-invasive plants, and other vegetation."

This video was created by the DWR and released in 2021.

Video Length: 2:45



14

- 1) What do you think is happening in this picture?
- 2) What do you notice about the people or their equipment?

This photo shows prescribed fire at Sequoia and Kings Canyon National Parks in June 2016, courtesy of the National Park Service.



15

Learn about the ecological benefits and uses of prescribed fire with CSU Chico professor and fire practitioner, Dr. Don Hankins, at a recently burned area in Forest Ranch.

Video Length: 5:30





16

Wildfire Ready Raccoon, created by Phil John after the 2008 Humboldt fire, has been an important part of the community ever since. Ready spreads his message of wildfire preparedness through his book, at events around Butte County, through social media, and now through music! Watch Ready Raccoon's music video for important tips about how to be prepared for a wildfire. It looks like he has some support from youth in the community too!



17

Students add new strategies to the mind map in their journals or on the whiteboard.



18

Small group or class discussion.

For the Stop category, have students reflect on Lesson 3 and review topics picked for the wildfire PSA activity.

### 3. Explain the student assessment activity.

**Assessment:** Students work in a small group to select and present an idea for a class community service project in fire mitigation, education, or recovery. Students will demonstrate their understanding of wildfire mitigation by using information from the lesson's videos, ideas from the past three lessons, and the resource packet from the TakeAction program.

Presentations should address the following four questions:

- What is the specific problem?
- What would your project work to accomplish?
- Why is this service project a good fit for our class to participate in?
- What skills, equipment, and time are needed to complete the project?



19

Break into small groups. Have students access the Community Service Project Ideas packet through the National Fire Protection Association's website or through this link:

<https://www.nfpa.org/-/media/Files/Public-Education/Campaigns/TakeAction/TakeActionProjectIdeas.aspx>

Students can pick from any of the five project categories.

**Propose a class wildfire mitigation project.**

- 1) Read through the project ideas together for your category.
- 2) Decide in your small group which project you think would be the best choice for you class to work on.
- 3) Discuss, make notes in your journals, and be prepared to share with the class:
  - What is the problem?
  - What would your project help to accomplish?
  - Why is this a good project for the class to work on?
  - What knowledge, equipment, and time is needed to complete the project?

**20**

Allow 10 minutes for group discussion and presentation planning that addresses the four questions on the slide. Each group has two or three minutes to present their project idea to the class and every person in the group should have a part in the presentation. Note student's project suggestions for later reference.

Some ideas that students present for a class project may be part of the next three lessons about personal and family preparedness, which is a great segue.

**Evaluation:**

<b>Community Service Project Proposal</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
Group Discussion and Preparation	Every student participated in a group discussion to select and prepare a two-minute presentation.	Some group members participated in a group discussion to select and prepare a two-minute presentation.	The group did not engage in a discussion or prepare for their two-minute presentation in the time allotted.
Presentation	Each member of the group participated in the presentation which answered all four questions.	Some group members participated in the presentation which answered three or fewer of the questions.	One group member presented ideas that answered two or fewer questions.

**Lesson Extension Recommendation:**

FireWorks: Northern California Oak Woodlands

M.3.1 "Once Upon a Wildfire" Reading and Discussion

<https://www.frames.gov/fireworks/curriculum/norcal-oak-woodlands>

"Once Upon a Wildfire", was written by the Butte County Fire Safe Council's Executive Director, Calli-Jane DeAnda, and illustrated by Jim Burch. Students read or listen to the story and discuss the actions the family in the story took to respond to a wildfire near their house.

Follow the link to our website to purchase or download a free copy of the book:

[Once Upon a Wildfire](#)



## Lesson 5: Fire Resistant Structures

### Preparing with Defensible Space and Home Hardening

**Guiding Question:** What can be done to improve a structure's chance of surviving a wildfire?

**Goals:**

- To give students an introduction to wildfire preparedness.
- To give students knowledge about achievable actions they can communicate to their families about defensible space and home hardening.

**Objectives**

Students will be able to:

- 1) Explain defensible space through describing features of the three Home Ignition Zones.
- 2) Make recommendations to improve a structure's likelihood of surviving a wildfire by using the Firewise principles.

**Materials and Preparation:**

- Pre-print the Firewise student handout, *How to Prepare Your Home For Wildfires*.  
<https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Preparing-homes-for-wildfire>
- Prepare PowerPoint slideshow for *Lesson 5: Fire Resistant Structures*.
- Students will need their wildfire journals in class.

**Subjects:** Science, Writing, Speaking and Listening

**Duration:** 60 minutes

**Setting:** Classroom

**Vocabulary:**

Defensible Space, The North Winds, Embers, Ladder Fuel, Crown Fire, Home Hardening, Firewise, Home Ignition Zones

<b>Standards:</b>		
<b>NGSS</b>	Crosscutting Concepts	Scale, Proportion, and Quantity Structure and Function
	Science and Engineering Practices	Developing and Using Models Engaging in argument from evidence
	Disciplinary Core Ideas	ESS3.B Natural Hazards
<b>Environmental Principles and Concepts</b>		Principle 3: Natural systems change in ways that people can benefit from and can influence.

## Lesson Overview:

If you did not read the story, *Once Upon a Wildfire*, this lesson is the beginning of the series on personal and family fire preparedness. These topics may be more difficult for students to discuss, especially students who have experienced a personal loss to a wildfire. It is recommended to refer to houses as “structures” whenever possible and acknowledge that these structures come in many shapes and sizes, including apartments or mobile homes.

The purpose of this lesson is to give students knowledge about achievable actions they can communicate to their families about defensible space and home hardening. Lesson resources and information is primarily from the National Fire Protection Association’s (NFPA) Firewise program. Students may not have the ability to make changes at home, but as future adult community members and potential land or homeowners, they are important concepts to be familiar with. Try to focus the lesson and checklist activity on actions that do not require expensive remodels or major landscaping, which could feel unachievable and overwhelming. The many students whose families live in rentals are also limited about what actions can be taken to change structures and property. Students can still use their knowledge after this lesson to start discussions at home and help with smaller projects such as removing surface fuels and ladder fuels. They can also be valuable observers, pointing out potential hazards and offering suggestions. The printable Firewise handout is a way to support students in bringing this lesson’s topics home to their families.

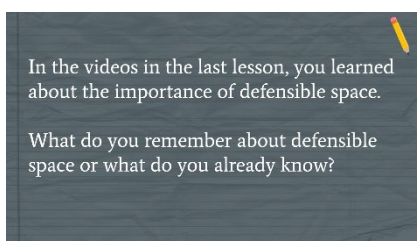
The recommended FireWorks lesson expands on the Firewise checklist activity to conduct a school assessment. This single or multiple-day lesson gives students the power to contribute to your school’s wildfire preparedness.

## Procedure:

1. Review your class community rules poster.
2. Go through the presentation slides for *Lesson 5: Fire Resistant Structures*.



2



4

Factors that can put structures at risk from a wildfire:

- Windy conditions
- Flying embers
- Dense vegetation and fuels
- Flammable building materials

5

This lesson will look at these factors and what can be done to lessen the risk from wildfire by preparing the space around a structure, and the structure itself.

### Wind-driven Fire

- “The North Wind” is a local, seasonal wind that occurs during the late summer and fall months.
- These strong winds travel downslope from the mountains toward the valley.
- Dry wind dries out fuel and increases the air temperature from friction.
- Wind-driven fires produce large amounts of embers.

6

Dry, downslope winds can speed through mountain passes at nearly 100 mph. The North Winds blow from the North and travel down the Sierra Nevada Mountains. If you remember from Lesson 3, wind is the most critical factor affecting fire behavior.

### Embers

Small pieces of burning material that are light enough to be blown through the air. This results in the rapid spread of wildfire as embers can be blown over a mile ahead of the main fire and start new fires. This is called spotting.

7

Embers cause the majority of wildfire home ignitions by igniting surrounding vegetation or materials on or near the home. Hardening efforts must prepare the structure and surrounding land from the threat of wind-blown ember storm.

### Fuel-driven Fire

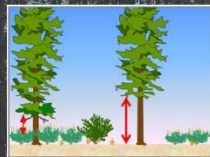
- Supported by dense vegetation.
- Temperatures can reach up to 1,200 degrees F.
- Fires can burn as surface fires (surface litter and duff), canopy fuels (through the trees), or crown fires (across the tops of trees).

8

Wildfires are much harder to control if they turn into crown fires. Firefighting efforts are focused on keeping fire on the ground where it is easier to defend against and extinguish.

### Ladder Fuel

Which tree stands a better chance against a surface fire? Why?



9

Ladder fuel is fuel that can carry a fire burning in low-growing vegetation up to the taller vegetation. This can move fire up into the canopy and crown where it can spread quickly to surrounding trees. The tree is unlikely to survive this type of fire, whereas it could often survive a surface fire. The tree on the right does not have ladder fuels around the base. Pruning trees up six to ten feet high is an important part of fire-preventative landscaping.

What can be done to prepare a structure for wind-driven and fuel-driven fires?

Defensible Space + Structure Hardening

10

“Defensible space is essential to improve your home’s chance of surviving a wildfire. It’s the buffer you create between a building on your property and the grass, trees, shrubs, or any wildland area that surround it. This space is needed to slow or stop the spread of wildfire and it helps protect your home from catching fire—either from direct flame contact or radiant heat. Defensible space is also important for the protection of the firefighters defending your home.”

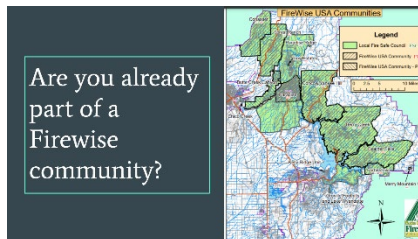
Image and quote from CAL FIRE: [Prepare for Wildfire - Defensible Space](#)





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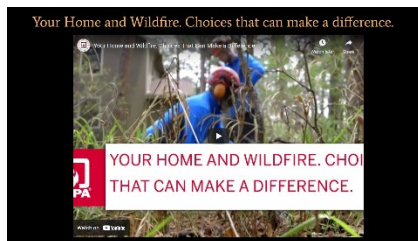
Why might it be beneficial to have smaller groups of people working together? Have you and your neighbors ever worked on a project or had to make a decision as a group?



12

Are you already part of a Firewise community?

As of 2021, there are eight Firewise USA® communities 'In Good Standing' in Butte County. Smaller communities and individual neighborhoods can still form within existing larger Firewise community boundaries.



13

Homeowners can play an important role in fire-safe communities by making choices that protect their home and property from wildfire risks. This 4-minute video shows some of those choices.

Video: [Your Home and Wildfire. Choices that can make a](#)



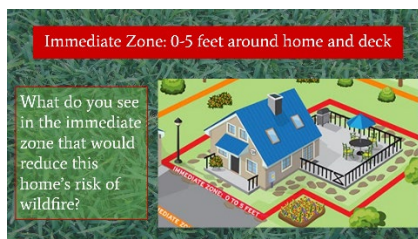
14

Pass out the Firewise *Prepare Your Home* handout. Printed handouts are available as a pdf in English and Spanish here: [Preparing homes for wildfire](#)

In the video you heard about the "home ignition zone". The National Fire Protection Association has created a list of guidelines that people can use to create an ideal defensible space around their homes, called the Firewise guidelines.

They divide the area around a building into areas referred to as the home ignition zones. These zones are broken into:

- Immediate Zone (0 to 5 feet around the house)
- Intermediate Zone (5 to 30 feet)
- Extended Zone (30 to 100 feet or property line)



15

"Science tells us this is the most important zone to take immediate action on as it is the most vulnerable to embers. Start with the house itself then move into the landscaping section of the Immediate Zone." -NFPA

### Immediate Zone: 0-5 feet around home and deck

- ☐ Use crushed stone or gravel instead of flammable mulches.
- ☐ Remove pine needles and leaves from roof.
- ☐ Clear rain gutters.
- ☐ Trim branches that overhang the home, porch, or deck.
- ☐ Trim, rake, and remove all dead plant matter.
- ☐ Move firewood stacks and lumber piles at least 30 feet from buildings.
- ☐ Remove any flammable materials from under decks.

16

Full checklist for each section can be found at:

[Prepare for Wildfire - Defensible Space](#)

### Intermediate Zone (5 to 30 feet around home)

Let's zoom out to the intermediate zone. What is a priority to maintain this area?



17

### Intermediate Zone (5 to 30 feet)

Keep it "Lean, Clean, and Green"

- ☐ Remove plants containing resins, oils, and waxes often found in highly flammable plants.
- ☐ Create fuel breaks with driveways, walkways/paths, patios, and decks.
- ☐ Keep lawns and native grasses irrigated and mowed to a height of four inches.
- ☐ Remove ladder fuels so a surface fire cannot reach the tree canopy.

18

Invasive plants can include Scotch and Spanish Broom, Large Periwinkle, Ivy, Eucalyptus, Mustard, and Non-native seasonal grasses.

For further investigation, this 5-page pdf from the University of California Agriculture and Natural Resources features some of these invasive and flammable plants that can have a negative impact on your landscape and the habitat around you.

[Invasive plants and wildland health](#)

### Extended Zone (30 to 100 feet or property line)

What do you notice in the extended zone?



19

### Extended Zone (30 to 100 feet or property line)

Break up both vertical and horizontal fuels.



- ☐ Reduce ladder fuels by pruning branches of large trees up to 6 to 10 feet (depending on their height) from the ground.
- ☐ Space out remaining trees and plants.
- ☐ Remove ground litter/debris and dead plant and tree material.
- ☐ The extended zone can go out to 200 feet if the property is on a slope with lots of vegetation.

20



21

According to the California Fire Safe Council, "Fire hardened means your home is prepared for wildfire and an ember storm. It does not mean fireproof. Home hardening addresses the most vulnerable components of your house with building materials and techniques that increase resistance to heat, flames, and embers that accompany most wildfires."



How can each area be "hardened" to reduce the risk from embers or flame contact?

Roof	Deck/Porch	House Siding
Skylights	Patio Furniture	Woodpiles
Chimney	Eaves	Garage Door
Windows	Flowerbeds	Garbage Cans
Vents	Vehicles	Fencing
Rain Gutters		

22

Group brainstorm. Quickly go through each point and have students share an idea to harden that area from embers or how to close up that area if there is an approaching wildfire. Refer to the Ember Awareness Checklist at the end of the lesson for ideas/answers.

Work with a partner to make a simple "Firewise Checklist". Write five or more questions that can be used to evaluate a structure's protection from wildland fire.

Make a list in your journal and be ready to share your questions with the class.

23

Students can use the *How to Prepare your Home For Wildfires* handout for guidance.

Example questions:

Is the roof clean?

Is there a strip of un-burnable material separating vegetation from the house?

Are there any trees overhanging the roof?

Our Class Firewise Checklist

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

24

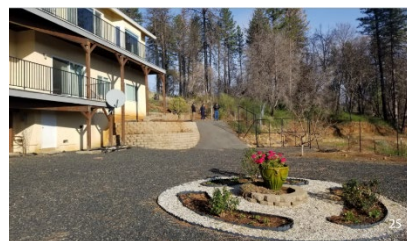
Have each pair share one of their Firewise questions with the class. Make a combined class list on the whiteboard with 7-10 questions. If other groups put the same question on their lists, they can raise their hands when the question is read aloud.

Once the list is complete, click through the next three photos.

### Assessment:

#### Part 1

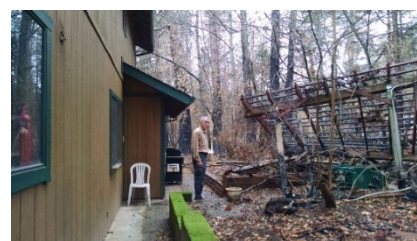
Students will use their personal and class Firewise checklists to make observations about the defensible space or hardening in three photos of foothill homes that survived a recent wildfire. What from the checklists can be seen in the photos?



25



26



27

## Part 2

Students write a paragraph about their thoughts on the importance of creating defensible space and hardening structures to prepare for a wildfire. Students can respond to the following questions in their paragraph:

- What are three Firewise principles you think are particularly important?
- Is there anything you learned today that you think your family should know about?
- What are some home or property fire-preparedness actions you think kids could help with?

### Evaluation:

	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
Part 1 Firewise Checklist	Worked collaboratively with a partner to make a list of five Firewise questions.	Worked semi-collaboratively with a partner to make a list of four or five Firewise questions.	Did not work with a partner to make a Firewise list, or the list had less than four items.
Part 2 Paragraph Response	Students show a strong understanding of the Firewise principles in their paragraph reflections.	Students show an understanding of the Firewise principles in their paragraph reflections.	Students do not show an understanding of the Firewise principles in their paragraph reflections.

### Lesson Extension Recommendation:

FireWorks: Northern California Oak Woodlands

M.3.4.A Assessing Your School

<https://www.frames.gov/fireworks/curriculum/norcal-oak-woodlands>

## Ember Awareness Checklist

### ☐ **Wood Roof**

Replace wood shake and shingle roofs with fire-resistant types such as composition, metal, and tile.

### ☐ **Roof Openings**

Plug openings in roof coverings, such as the open ends of barrel tiles with non-combustible materials.

### ☐ **Roof Debris**

Routinely remove plant debris such as pine needles, leaves, branches, and bark from the roof.

### ☐ **Skylights**

Replace plastic skylights with types constructed of double-pane glass. One of the panes should be tempered glass. Close skylights if wildfire threatens.

### ☐ **Spark Arrester**

Install an approved spark arrester on chimneys.

### ☐ **Windows**

Replace single-pane, non-tempered glass windows with multiple-pane, tempered-glass types. Close all windows if a wildfire is threatening.

### ☐ **Vents**

Cover attic, eave, and foundation vents with 1/8 inch wire mesh or install new vent types designed to prevent ember entry. If a wildfire is threatening, consider covering vent openings with precut plywood or aluminum foil folded several layers thick and stapled.

### ☐ **Rain Gutters**

Keep rain gutters free of plant debris during fire season. Consider using rain gutter covers to reduce maintenance.

### ☐ **Siding**

Fill gaps in siding and trim materials with a good quality caulk and replace poor condition building materials.

### ☐ **Woodpiles**

Move firewood stacks and scrap lumber piles at least 30 feet from the house or other buildings.

### ☐ **Patio Furniture**

Place combustible patio furniture, such as lounges, tables, and hammocks, inside the house or garage if a wildfire is threatening.

### ☐ **Deck Boards**

Replace deck boards that are less than one inch thick or that are in poor condition with thicker, good condition boards. Use metal flashing between the deck and the house.

### ☐ **Deck Debris**

Remove plant debris from the gaps between deck boards, the gap between the deck and house, and lying on top of the deck.

### ☐ **Porch and Deck Accessories**

If a wildfire is threatening, remove combustible materials from the porch and deck including newspapers, wicker baskets, doormats, dried flower arrangements, and place BBQ propane tanks indoors.

### ☐ **Under the Deck**

Remove plant debris, woodpiles, and other easily ignited materials from under decks. Consider enclosing the open sides of the deck with siding materials that are properly vented or 1/8 inch wire mesh to reduce maintenance and deter ember entry. Do not use wooden lattice to enclose decks.

### ☐ **Flowerboxes**

Remove wooden flower boxes from beneath windows if a wildfire is threatening.

### ☐ **Eaves**

Cover open eaves with sheathing, such as plywood or fiber-cement board. Use tongue and groove joints or other intricate joint types and don't use butt joints.

### ☐ **Flowerbeds**

Replace wood mulches with noncombustible types and remove plant debris, including dried grass and flowers, dead leaves, and dead branches from flowerbeds next to the house, other buildings, and next to wooden fences. Replace ornamental junipers with low-growing deciduous shrubs or flowers under irrigation.

### ☐ **Vehicles**

Close vehicle windows. Back into the garage and close the garage door or park away from the house.

### ☐ **Garage Door**

Adjust garage doors to achieve as tight a fit as possible with the door frame. Consider using trim around the garage door opening to reduce the size of gap openings. Close the garage door if a wildfire is threatening.

### ☐ **Garbage Cans and Recycling Bins**

Use garbage cans covered with tight-fitting lids near the house or other buildings. Move newspaper recycling bins indoors.

### ☐ **Wooden Fences**

Maintain wooden fences in good condition and create a noncombustible fence section or gate next to the house for at least five feet.

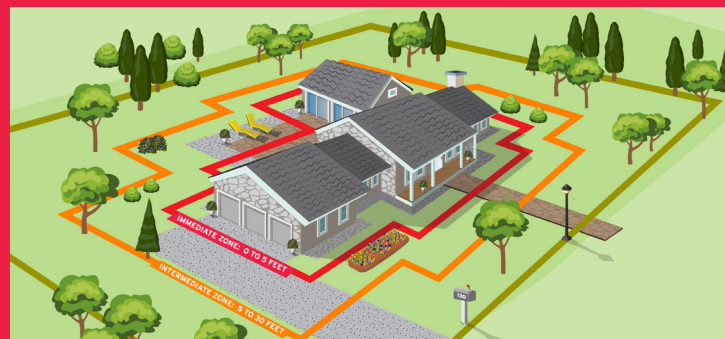
From:

[https://www.nps.gov/samo/learn/management/upload/EmberAwarenessChecklist\\_4\\_2013\\_Final.pdf](https://www.nps.gov/samo/learn/management/upload/EmberAwarenessChecklist_4_2013_Final.pdf)

# HOW TO PREPARE YOUR HOME

## FOR WILDFIRES

WILDFIRE RISK REDUCTION STEPS THAT CAN MAKE YOUR HOME SAFER DURING A WILDFIRE



### ■ VEGETATION MANAGEMENT

#### 1. HOME IGNITION ZONES

To increase your home's chance of surviving a wildfire, choose fire-resistant building materials and limit the amount of flammable vegetation in the three home ignition zones. The zones include the **Immediate Zone**: (0 to 5 feet around the house), the **Intermediate Zone** (5 to 30 feet), and the **Extended Zone** (30 to 100 feet).

#### 2. LANDSCAPING AND MAINTENANCE

To reduce ember ignitions and fire spread, trim branches that overhang the home, porch, and deck and prune branches of large trees up to 6 to 10 feet (depending on their height) from the ground. Remove plants containing resins, oils, and waxes. Use crushed stone or gravel instead of flammable mulches in the **Immediate Zone** (0 to 5 feet around the house). Keep your landscape in good condition.

### ■ FIRE RESISTIVE CONSTRUCTION

#### 3. ROOFING AND VENTS

Class A fire-rated roofing products, such as composite shingles, metal, concrete, and clay tiles, offer the best protection. Inspect shingles or roof tiles and replace or repair those that are loose or missing to prevent ember penetration. Box in eaves, but provide ventilation to prevent condensation and mildew. Roof and attic vents should be screened to prevent ember entry.

#### 4. DECKS AND PORCHES

Never store flammable materials underneath decks or porches. Remove dead vegetation and debris from under decks and porches and between deck board joints.

#### 5. SIDING AND WINDOWS

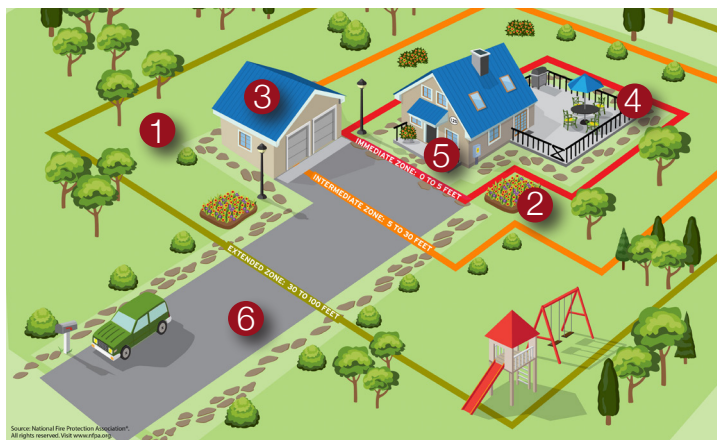
Embers can collect in small nooks and crannies and ignite combustible materials; radiant heat from flames can crack windows. Use fire-resistant siding such as brick, fiber-cement, plaster, or stucco, and use dual-pane tempered glass windows.

### ■ BE PREPARED

#### 6. EMERGENCY RESPONDER ACCESS

Ensure your home and neighborhood have legible and clearly marked street names and numbers. Driveways should be at least 12 feet wide with a vertical clearance of 15 feet for emergency vehicle access.

- Develop, discuss, and practice an emergency action plan with everyone in your home. Include details for handling pets, large animals, and livestock.
- Know two ways out of your neighborhood and have a predesignated meeting place.
- Always evacuate if you feel it's unsafe to stay—don't wait to receive an emergency notification if you feel threatened from the fire.
- Conduct an annual insurance policy checkup to adjust for local building costs, codes, and new renovations.
- Create or update a home inventory to help settle claims faster.



**TALK TO YOUR LOCAL FORESTRY AGENCY  
OR FIRE DEPARTMENT TO LEARN MORE  
ABOUT THE SPECIFIC WILDFIRE RISK  
WHERE YOU LIVE.**



**FIREWISE USA®**  
RESIDENTS REDUCING WILDFIRE RISKS

VISIT [FIREWISE.ORG](https://www.firewise.org) FOR MORE DETAILS

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**Order a Reducing Wildfire Risks in the Home Ignition Zone checklist/poster at [Firewise.org](https://www.firewise.org)**



## Lesson 6: Family Preparedness- Get Ready! Making a Go Bag and Family Emergency Plan

**Guiding Question:** What can we do now to prepare for a wildfire close to home?

### Goals:

- To set up students with information, resources, and encouragement to start conversations at home about wildfire preparedness.
- To empower students to take the steps of setting up a Family Emergency Plan and personal Go Bag.

### Objectives

Students will be able to:

- 1) Explain the steps and contents of a Family Emergency Plan.
- 2) Describe the characteristics and items of a complete Go Bag.
- 3) Communicate to their families why making a Family Emergency Plan and Go Bag are important.

### Materials and Preparation:

- Pre-print the student handouts for this lesson.

*Family Communication Plan*

[https://www.ready.gov/sites/default/files/2020-03/ready\\_family-communications-plan\\_kids.pdf](https://www.ready.gov/sites/default/files/2020-03/ready_family-communications-plan_kids.pdf)

*Backpack Emergency Go Kit!*

<https://www.nfpa.org/-/media/Files/Public-Education/Campaigns/TakeAction/TakeActionBackPackGoKit.ashx>

### Optional Handouts for Assessment Activity:

*Wildfire Preparedness for Household Pets* (7 pages)

<https://www.nfpa.org/-/media/Files/Public-Education/Campaigns/TakeAction/TakeActionPetsChecklist.ashx>

*Wildfire Preparedness for Horses* (6 pages)

<https://www.nfpa.org/-/media/Files/Public-Education/Campaigns/TakeAction/TakeActionHorseChecklist.ashx>

- Prepare PowerPoint slideshow for *Lesson 6: Family Preparedness- Get Ready!*
- Students will need their wildfire journals in class.

**Subjects:** Listening and Speaking, Writing, Health

**Duration:** 45-60 minutes  
(30 minutes presentation, 15-30 minutes activity planning time)

**Setting:** Classroom

**Vocabulary:** Go Bag, Family Emergency Plan (Communication Plan + Action Plan)



<b>Standards:</b>		
<b>NGSS</b>	Crosscutting Concepts	
	Science and Engineering Practices	
	Disciplinary Core Ideas	ESS3.B Natural Hazards
<b>Environmental Principals and Concepts</b>		Principle 3: Natural Systems Change in Ways that People Benefit From and Can Influence

### Lesson Overview:

After the lesson about defensible space and home hardening, Lesson 6 continues to focus on wildfire preparedness at home. The two topics for this shorter lesson are the Family Emergency Plan and the Go Bag. Students are encouraged to think about how they can take a leadership role in wildfire preparedness at home. Two printed handouts from national fire preparedness programs are given to students to aid in making their Family Plans and Go Bags. Students also write their ideas in their journals and reflect on the wildfire preparedness actions their family has already taken. The presentation slides give visuals and discussion prompts to break down the two topics, step by step.

When people develop a Family Emergency Plan, there is less chance of panic during a wildfire. If they are separated from each other, family members have a way to communicate. If the family is evacuating from home together, they know where to meet, who to contact, how to rejoin as a family, and what task each person is responsible for. Since every fire is different, those who have planned have more options than those who are just reacting to the disaster. It also supports improved mental health and reduced anxiety for students living in a community with high wildfire risk because they know their family has a plan in place. We can't know exactly when the next fire will occur, but we can be ready! People across the country have Family Emergency Plans to respond to other disasters such as a hurricane, earthquake, or tornado. Much of this information is widely useful and not unique to wildfire preparedness.

At the end of the lesson, students should be able to explain the components of each topic to their families and understand the supporting documents to use. Students should be given a few days to fill out their Family Emergency Plans, allowing for time to reflect and coordinate with family availability. You may want to require students to get a family sign-off and bringing a copy back to class to review in the next lesson.

The assessment activity gives you and the students choice of the topic and presentation method. The suggested activity is to have students work in small groups to make short how-to videos about one of the three main topics from the lesson. These videos can then be shared



back with students' families. It can also be shared with a wider audience to grow community awareness and preparedness.

### Procedure:

Go through presentation slides for *Lesson 6: Family Preparedness- Get Ready!*


Can you recall a time your family has talked about what to do if there is a wildfire nearby?

If so, what were some actions or ideas you remember talking about?

If not, can you think of something you have learned in this program so far that you would like to share with them?

3

Two-minute journal write.




Today, we will learn about two important steps to wildfire preparedness:

Making a Go Bag and putting together a Family Emergency Plan.

4


These actions are important for wildlife preparedness and are also useful to be prepared for other types of emergency situations. This lesson focuses on task-based, achievable things that students can do for themselves and their families. Appropriate discussion and idea sharing is encouraged as you go through the steps and components of each topic.

A Go Bag is something you pre-pack that holds essential items you will need for 72 hours. It should be light enough for one person to carry and packed in a sturdy bag that can be grabbed quickly.



5

Every family member should have their own Go Bag. If students do not have a spare backpack, the Go Bag could be put in a duffel/gym bag, suitcase, or carried in a laundry basket or box. Having a Go Bag ready will give you confidence that you have your most important items with you, and you do not have to worry about leaving behind valuables during a rushed and stressful decision. It is especially important to have a Go Bag packed during fire season (June-November) and ready to go during Red Flag warning periods. If possible, have a Go Bag ready year-round, as wildfire season becomes longer and more unpredictable.



What would you put in a Go Bag?

6

Can you think of some items for each category?

Basic Needs (Health and Safety)	Communication and Information
Tools	Comfort and Keepsakes

7

Using a chart may help students think of important items. If students are feeling overwhelmed or stuck, move on to go through each category as a class and share ideas.

**Basic Needs**




- Water bottle
- Nutritious packaged snacks (trail mix or energy bars keep well)
- Change of clothes
- Sturdy shoes and a jacket
- Glasses/contacts if you use them
- Prescription medication you regularly take
- Toiletry bag (toothbrush, toothpaste, hand sanitizer, small liquid soap, wet wipes)

8

Add a N95 face mask and goggles for smoke protection, if possible.  
A puffy jacket is warm, lightweight, and packs down small.  
Would you add anything to this list?

**Tools**




- Flashlight/headlamp with extra batteries
- Whistle
- Money
- Sunglasses
- Waterproof zip bag
- Small First Aid Kit (Band-aids, Q-tips, elastic bandage, gloves, small scissors, bandana)
- Plastic poncho

9

Would you add anything to this list?

**Communication and Information**




- Cell phone and charger
- Battery or crank powered radio
- Copy of your Family Emergency Plan
- Printed evacuation route map
- Fill a small notebook with important phone numbers.

10

In a wildfire emergency, there may not be cell service because of damage to power lines or a public safety power shut off. Cell phones can also run out of battery. It is important to have numbers physically written down. Important phone numbers can be the numbers listed on the Family Communication Plan plus a contact person at your families' workplace, relatives who live out of the area, close friends, and neighbors. The radio can be used to listen to local emergency updates.

**Comfort and Keepsakes**




- Headphones
- Writing or drawing materials for your notebook
- Book
- Blanket
- Photographs and mementos
- Favorite toy, stuffed animal, or other comforting item

11

Listed are some suggestions of comforting and special items. There may not be room for all these items in the Go Bag. Students may not feel comfortable sharing out loud these items, but they can write them down in their journal. Would you add anything to this list?


Your Go Bag should be kept in a visible place where it can be grabbed quickly, like near the front door. Check your Go Bag periodically for expired items and make sure you replace anything you use.



12

The Go Bag should be saved for emergencies and not taken as an overnight bag for recreational trips. If students need to use the backpack, Go Bag items can be stored together in a box and re-packed into the backpack during fire season.

Now that you know what goes inside a Go Bag, your next task is to make one.



Do you know friends or family members who have Go Bags? If not, what would you tell them about what you learned?

13

Pass out the student handout from the National Fire Protection Association, *Backpack Emergency Go Kit!* If students have items listed in their journals that are not included on the page, they can write or draw them in. Now that each family member has a Go Bag, the next step is to make a Family Emergency Plan.

A Family Emergency Plan is a written document that prepares each family member to know their role and stay connected during an emergency. The plan should include what to do if you are all home together or separated.

14

Having a Family Emergency Plan will set up students and their families to stay safer and calmer in the event of an emergency or evacuation. This document should be kept in a place that is easy to access, such as on the refrigerator or in an envelope with other emergency related documents such as printed local maps, copies of important documents, and area-specific emergency information.

Step 1: Hold a family meeting.

Step 2: Fill in the front side of the Family Communication Plan together.

Step 3: Flip over the paper and add points for a Family Action Plan. This action plan outlines a task that each family member is responsible for, if leaving the house together.

15

Pass out a printed Family Communication Plan sheet to each student and give them a chance to look it over.

The next slides walk through the important pieces of the Family Emergency Plan including collecting important contact information, a plan to safely exit the house, where to meet, and the Action Plan.

**Important Information**  
Fill in this information and keep it close to you. Write it on a piece of paper and keep it in your office, and your classroom. Be sure to look it over every year and keep it up to date.

<b>Out-of-Town Contact</b> Name: _____ Home: _____ Cell: _____ Email: _____ Facebook: _____ Twitter: _____	<b>Neighborhood Meeting Place:</b> _____ <b>Regional Meeting Place:</b> _____
<b>Work Information</b> Workplace: _____ Address: _____ Phone: _____ Facebook: _____ Twitter: _____ Evacuation Location: _____	<b>School Information</b> School: _____ Address: _____ Phone: _____ Facebook: _____ Twitter: _____ Evacuation Location: _____

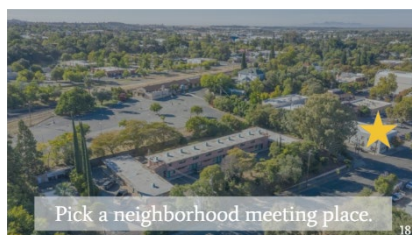
16

A closer look at what is on the Family Communication Plan from FEMA's Ready program. Start off by filling in the school's information together. Leave the rest of the spaces blank for students to fill in during the family meeting. If the family is split up, each family member should use the out-of-town contact as their designated check-in person.



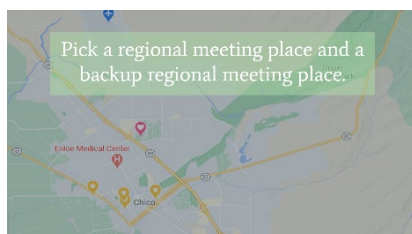
17

This is important in the event of a house-fire or if a typical exit point is unsafe to use.



18

Perhaps this place is a street corner, trusted neighbor's house, or somewhere with a clear landmark. This will be added to the front side of the plan during the family meeting, but students can share ideas in class about areas in their neighborhood they would suggest and why it is a good place to meet.



19

If the family is spread out, it may not be possible to all meet back home. Depending on the fire's progress, road closures, or evacuation orders, a backup meeting place should be designated. This place should be somewhere easy to access with people around who could help you, such as a school, public library, store, or police station. If you are not able to get home or to either meeting location, stay with friends, teachers, or a trusted adult and evacuate with them. Begin your Family Communication Plan by checking in with your designated contact person to let them know who you are with and where you are going.

**Action Plan**

Pre-write the names of each family member to fill in during your family meeting.

Examples of tasks to split up:

- ☐ Pack food and water.
- ☐ Get pets and their essential supplies ready.
- ☐ Gather everyone's Go Bags.
- ☐ Get the car ready and load supplies.
- ☐ Check in with a neighbor or family contact.

**20**

The Action Plan lists a task each person is responsible for before leaving the house together.

Potential questions for student discussion:

Why is it a good idea to have each family member responsible for a task? Is there anything you can think of now that you feel the most comfortable doing? What could you do to help younger siblings or pets? What tasks do you think are better left to an adult?

**21**

2-minute video from the TakeAction program.

Students are often concerned about the wellbeing of their pets and animals. Finish the lesson about preparedness by talking about how to plan and make a Go Bag for the fuzzy members of their family.

Students can add the phone number for the North Valley Animal Disaster Group Hotline (530) 895-0000 to their Family Communication Plans. More detailed information about pet preparedness can be found in the NFPA's packet in the lesson's materials and preparation section.

Make a 3-5 minute how-to video about one of the following topics:

- Making a Go Bag.
- Making a Family Communication Plan.
- Making a plan for pets and animals.

**22****Assessment:**

Students work in a small group to make a three to five-minute how-to video about one of the key topics from the lesson. Topic options include how to make a Go Bag, the steps and importance of a Family Communication Plan, or how to make a pet/livestock preparedness plan and Go Bag. It is recommended to have students film the videos at school. This activity could be spread over several days, depending on how much time you can apply to this and what students can accomplish outside of class time.

If students are covering pet/animal preparedness, they may want to take video footage of their animals, since they are not allowed to be brought to school. While the format and rules are up to you, students could show animals in other creative ways, such as using a stuffed animal or editing in already filmed videos of animals. Students may want to bring in non-living things from home for demonstrations and video props. If you opt not to do the how-to video, students could make a comic strip or a video storyboard describing the steps instead.

1. Decide if students will make a how-to video or a comic strip/storyboard.
2. Split the class into small groups, explain the project, and set guidelines and the timeline.
3. Pass out a printed packet to groups covering pet and livestock preparedness or access online. (Links in Materials and Preparedness section.)
4. If you select making how-to videos, explain how you want videos to be captured and edited. Clarify what equipment your class has available and what personal equipment may be used.
5. Give groups time to develop their topic, brainstorm how they want to present it, and make an outline.
6. Oversee video filming, editing, and project process.
7. When finished, share the final products! This can be as a movie premiere in class, shared with lower grades at your school, sent to students' families digitally, or shared back with the Butte County Fire Safe Council. The more that students see their work and ideas being recognized by other people the better, and the more wildfire preparedness reaches outside the classroom walls.

### Evaluation:

Assessment Activity	Good	Fair	Poor
How-to activity - Go Bag - Family Emergency Plan - Pet/animal preparedness	Students' video or comic strip demonstrates a strong understanding of the topic and communicates all the steps involved.	Students' video or comic strip demonstrates a fair understanding of the topic and communicates most of the steps involved.	Students' video or comic does not demonstrate an understanding of the topic and misses many of the important components.
If the activity was a group project:  Group Project Cooperation	Students collaborate positively in their small groups and contribute to the success of the project. Each student can explain what their role was.	Students collaborate in their small groups and are mostly positive. Some, but not all, students can explain what their role was and how they contributed.	Students did not collaborate positively. Not every student participated or there was a breakdown in group communication.

### Lesson Extension Recommendations:

Lead a peer review and facilitate students in giving positive feedback and observations about each other's videos.

Students imagine their videos will be posted on the Butte County Fire Safe Council's YouTube page to share with the community (Possible with guardian permission). Students write a title and one-paragraph description of their video that would appear with the post.





# Family Communication Plan

Emergencies can happen at any time. Does your family know how to get in touch with each other if you are not all together?

**Before** an emergency happens, have a family discussion to determine who would be your out-of-state point of contact, and where you would meet away from your home — both in the neighborhood and within your town.

*Let them know  
you're OK!*

Pick the same person for each family member to contact. It might be easier to reach someone who's out of town.

## Important Information

Fill in this information and keep a copy in a safe place, such as your purse or briefcase, your car, your office, and your disaster kit. Be sure to look it over every year and keep it up to date.

### Out-of-Town Contact

Name: \_\_\_\_\_  
Home: \_\_\_\_\_  
Cell: \_\_\_\_\_  
Email: \_\_\_\_\_  
Facebook: \_\_\_\_\_  
Twitter: \_\_\_\_\_

### Neighborhood Meeting Place:

\_\_\_\_\_  
\_\_\_\_\_

### Regional Meeting Place:

\_\_\_\_\_  
\_\_\_\_\_

### Work Information

Workplace: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Facebook: \_\_\_\_\_  
Twitter: \_\_\_\_\_  
Evacuation Location: \_\_\_\_\_

Workplace: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Facebook: \_\_\_\_\_  
Twitter: \_\_\_\_\_  
Evacuation Location: \_\_\_\_\_

### School Information

School: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Facebook: \_\_\_\_\_  
Twitter: \_\_\_\_\_  
Evacuation Location: \_\_\_\_\_

School: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Facebook: \_\_\_\_\_  
Twitter: \_\_\_\_\_  
Evacuation Location: \_\_\_\_\_

School: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Facebook: \_\_\_\_\_  
Twitter: \_\_\_\_\_  
Evacuation Location: \_\_\_\_\_



<http://www.ready.gov/kids>

# Go Kit!

Continued



## Suggested items and actions to take to complete your Go Kit (you can probably think of a few more!)

### IMPORTANT CONTACTS

- » Fill a small notebook with information about your important contacts. Ask your parents or guardians to help get this information for you:
  - Work and cell phone numbers for your parent(s) or guardian(s), as well as their work address and an alternate contact at their work in case they are away from their phone.
- » Phone numbers of relative(s) who live out of state, in case local cell towers don't work.
- » Addresses and phone numbers of your closest friends.
- » Names/addresses of three safe locations to meet in case you are away from home and school, such as the local library, a friend or neighbor's home, local police station, hospital, or community center.
- » Information about any medical condition you have or medication that you are on and the name and phone number of your doctor.
- » If you wear glasses, the prescription information for them.
- » Phone numbers for neighbors. They may be able to check on your home or pets.



### NATIONAL FIRE PROTECTION ASSOCIATION

The leading information and knowledge resource on fire, electrical and related hazards







## Lesson 7: Wildfire Response- Get Set! Go!

### Evacuations and Emergency Safety

**Guiding Question:** What do we do if a wildfire leads to an evacuation?

#### Goals:

- To give students resources to share with their families to make quick, informed choices during a wildfire emergency.
- To give an overview of what could happen during an evacuation and the available resources, information, and organizations that can help students.

**Subjects:** Health, Listening and Speaking, Reading, Writing

**Duration:** 60 minutes

**Setting:** Classroom

**Vocabulary:** Evacuation Warning, Immediate Evacuation Order, Public Assembly Point, Shelter-In-Place, Evacuation Shelter

#### Objectives

Students will be able to:

- Describe how they will put their Family Emergency Plan into practice in the event of an evacuation warning or order.
- Explain what action should be taken for each evacuation advisory term. (Evacuation Warning, Immediate Evacuation Order, Public Assembly Point, Shelter-In-Place)
- List three or more resources they could use to find information or get help during a wildfire emergency.

#### Materials and Preparation:

- Pre-print student handouts or request physical resources in advance from the Butte County Fire Safe Council.  
*Butte County Emergency Guide* Trifold - Link to print: [EMERGENCY!](#)  
*"Ready, Set, Go" Evacuation Plan* - Link to print: [Disaster Preparedness](#)  
*Community Evacuation Maps* are found in the same table at the link above. ^^^
- Students should have a copy of their Family Communication Plan or notes to review.
- Prepare PowerPoint slideshow for *Lesson 7: Wildfire Response- Get Set! Go!*
- Students will need their wildfire journals in class.

Standards:		
NGSS	Crosscutting Concepts	
	Science and Engineering Practices	

	Disciplinary Core Ideas	ESS3.B Natural Hazards
<b>Environmental Principals and Concepts</b>		Principle 3: Natural Systems Change in Ways that People Benefit From and Can Influence

### Lesson Overview:

This lesson builds on personal and family preparedness topics and contains potentially life-saving information about what to do in the event of a wildfire emergency and evacuation. Continue with this lesson after students have had enough time to complete their Family Emergency Plans.

This lesson may be triggering for students who have been through an evacuation or had family members or acquaintances impacted. It is recommended that you have a school counselor on hand to support students who wish to leave the classroom or want to talk with a mental health professional. It is important to keep control of the lesson by focusing discussions on the actions that students can take in the future.

The two printable resources for this lesson are from the Butte County Office of Emergency Management and the Butte County Fire Safe Council. Print these resources ahead of time so students can review them in class and take physical copies home. The *Butte County Emergency Guide* Trifold and “*Ready, Set, Go*” *Evacuation Plan* should be kept at home with the Family Emergency Plan and ideally copied for reference in the car. These take-home resources support the program's goal of using youth to reach a wider community audience with wildfire preparedness and safety information.

You may want to give a break after reviewing your community’s evacuation map. A stretch break, relocation to somewhere outside, or game may help refresh students and avoid information overload. You also may want to save the “*Ready, Set, Go*” *Evacuation Plan* for another day, if you spent a long time reviewing the evacuation map.

### Procedure:

1. Review your Classroom Community Rules for the program and remind students of your expectations. This would be a good time to reiterate that in this lesson you will be focusing on positive actions in the future.
2. Go through presentation slides for *Lesson 7: Wildfire Response - Get Set! Go!*

Take 3-5 minutes to review your Family Communication Plan and Action Plan and share with a partner:

1. Where is your regional meeting place?
2. Who did your family choose as your out of town contact?
3. What is your role in the Family Action Plan?

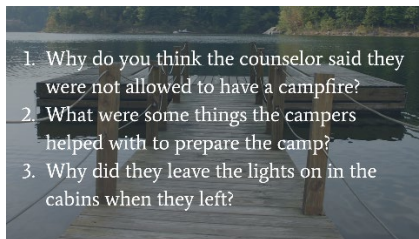
3

Meet with the students in a small group who do not have a Family Plan completed and talk through their ideas about what they would suggest to their families for each question.

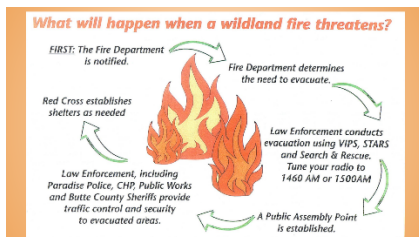


4

From Ready Kids!, a national disaster preparedness program. You can play as a class and talk through decisions together or instruct students to access the game from individual devices to click through themselves. Time 5-10 minutes.



5



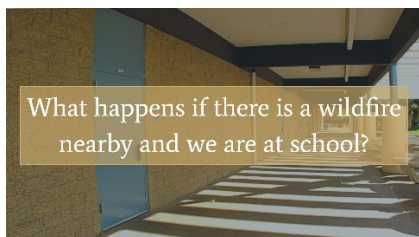
6

Share with your students details from your school's fire emergency plan. If your school does not have a plan, or you are unsure how to access it, we encourage you to speak with a school administrator. Remind students to tell a teacher immediately if they observe a fire on or off campus.

Your class may be told to:

- Shelter-in-place
- Evacuate to another part of campus
- Evacuate off-campus

Remind students that no matter what action your class takes, stay calm, stay with the group, and pay attention to your directions.



7



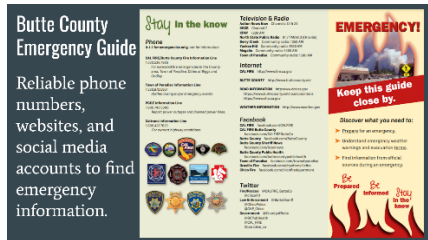
8

Class discussion:

What sources would you use to find updates or information during an emergency?

What sources do you think are the most informative and trustworthy?

Which resources depend on cell service or internet access?



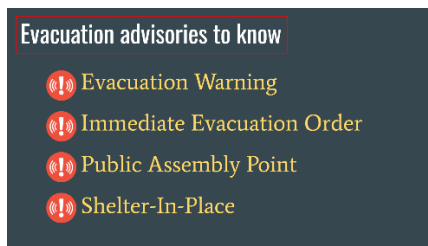
9

Pass out a printed *Butte County Emergency Guide* trifold to each student. Give them a minute to look it over and compare with their ideas from the previous discussion. Review key information together. Have students staple the trifold to their Family Communication Plans.



10

These organizations will work together during a wildfire emergency and will receive additional support from emergency service teams from out of the area. From top left to bottom right: Butte County Fire Rescue, Paradise Fire Department, CAL FIRE, City of Biggs, Gridley City, City of Oroville, Chico Fire & Rescue, Butte County Emergency Management, North Valley Animal Disaster Group, Chico Police, Paradise Police, Butte County Sheriff, California Highway Patrol.



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Familiarize students with these four terms they may hear in an emergency broadcast or receive as an alert.

**Evacuation Warning:** Alerts people of a potential threat to life and property. People who need additional time should consider evacuating at this time. Start your Family Communication Plan now to prepare for a changing situation.

**Immediate Evacuation Order:** Requires the immediate movement of people out of an affected area due extreme danger. Due to the changing nature of the emergency, this order may be the only warning that people in the area receive. Choosing to stay could put your life in danger and obstruct the work of firefighters and rescue workers.

**Public Assembly Point:** A temporary assembly area that provides a safe place for evacuees to assemble. People will stay here until the threat is past or evacuation routes are accessible. This is also a place for evacuees who cannot evacuate on their own and need assistance getting to a shelter. Evacuees who are capable of evacuating on their own do not need to go to Public Assembly Points unless directed by public safety officials.

**Shelter-In-Place:** Advises people to stay secure at their current location by remaining in place. There may not be a safe evacuation route at this time.

### Mobile apps with wildfire and emergency updates:



Cal Fire Ready for Wildfire App



Emergency Mass Notification System  
(Receive emergency notifications by phone, text, or email.)

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If students have a smartphone, these apps can be helpful. Cell phones are likely to be with students, while they may not have access to their emergency plan documents. Students can also download offline maps with saved locations, such as their regional meeting place, their closest Public Assembly Point, and their family's work addresses.

### Community Evacuation Maps Available:

Berry Creek  
Butte Creek/Butte Valley  
Cohasset/Richardson Springs  
Forbestown/Clipper Mills/Feather Falls/Robinson Mill/Hurleton  
Forest Ranch/Butte Meadows  
Paradise/Upper Ridge  
Paradise One-Way Evacuation Brochure  
Yankee Hill Area  
East Oroville, Bangor, Palermo and Cherokee

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Project your local map with evacuation routes overhead:  
Butte County.net: [Disaster Preparedness](https://www.buttecounty.net/disaster-preparedness)

If you have physical maps printed, pass them out now. You can request physical copies from the Butte County Fire Safe Council by emailing [laurendeterra@buttefiresafe.net](mailto:laurendeterra@buttefiresafe.net) or calling 530-877-0984.

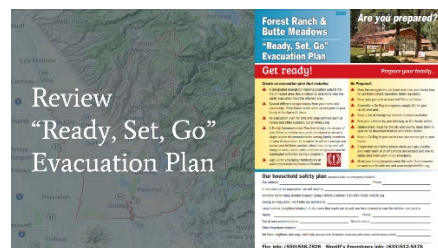
Note your local Emergency Travel Routes and Public Assembly Points. Talk through how you would get onto the emergency travel route from school and ask students to visualize how they would get there from home.

### Putting your emergency plan into action

- 1) Start your Family Communication Plan.
- 2) Secure people and pets.
- 3) Secure structure.
- 4) Evacuate, following directions from local health and safety officials.
- 5) Stay informed about changing conditions and emergency updates.
- 6) Get to a safe place.

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The next student handout, *"Ready, Set, Go" Evacuation Plan*, will give detailed information about each of these steps and be a valuable resource for students to take home.



15

Pass out a *"Ready, Set, Go" Evacuation Plan* to each student. This pamphlet was updated in 2020. Students and their families may have received a copy in the mail. If it was discarded or misplaced, students will have a new copy to bring home. It is recommended to keep a copy in the home and car. Students should now be familiar with all the topics on the first page and the Evacuation Advisory terms on the third page. Spend most of your time with this document reading through the "Get Set!, Go!" sections. Link to plans: [Disaster Preparedness](https://www.buttecounty.net/disaster-preparedness)  
(All the plans are the same, with the only difference being the community's name and picture shown at the top of page one. If your community is not listed, choosing any community plan will do.)

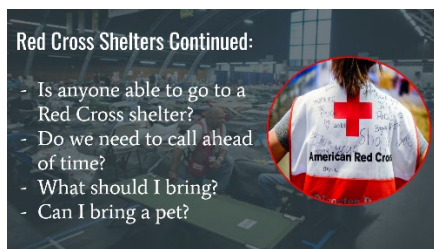




16

When the safest location is determined, the American Red Cross will open shelters. Evacuees will be given food, water, first aid if necessary, toiletries, and a place to rest. Counselors will be there for people who are upset or frightened. Remember, it is okay to talk to a trusted adult about how you feel. Most people do not stay in a shelter very long and make plans to stay with friends or family, if possible. Trained Red Cross volunteers on the Disaster Action Team will arrive from near and far to help people who were evacuated. The latest information about the fire and when families can return home will be available. Always register with official personnel when you arrive at a shelter. Check in with your out-of-town contact to let them know you arrived safely.

Red Cross Wildfire Relief: [American Red Cross – Wildfire](#)



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Q: Is anyone able to go to a Red Cross shelter?

A: Everyone is welcome at a Red Cross shelter. If you need to leave your home due to a disaster or emergency, you are welcome to come to a Red Cross shelter. Your service animal is also welcome.

Q: Do we need to call ahead of time?

A: No need for a reservation, just show up. If you need our help, come to the shelter.

Q: What should I bring?

A: Bedding, clothing, medications, personal Go Bag, and emergency kit

Q: Can I bring a pet?

A: To maintain a safe and healthy environment in our shelters, pets are not allowed. Please make arrangements for your pet before coming to the shelter. If you need assistance, call your local Red Cross office or ask a shelter worker when you arrive: we work with partners in the community who can open a pet shelter nearby.

Q&A from: [Disaster Shelters | Find Shelters](#)

**Assessment:**

Write a letter to Wildfire Ready Raccoon.

Explain your expectations for letter format, content, and length. Writing a letter guides students in reflecting on the most important or memorable Wildfire in the Foothills topics. This activity has the option to share student conclusions and stand-out topics back with the Butte County Fire Safe Council to help us improve our youth outreach. Ready Raccoon always loves hearing from students! Illustrations, poetry, and other creative mediums are also encouraged as an alternative. You can mail letters to Ready Raccoon in a combined class envelope to:

Butte County Fire Safe Council Re: Ready  
5619 Black Olive Drive  
Paradise, CA 95969

Optional sentence starters:

- Something that surprised me about wildfire is \_\_\_\_\_.
- I used to think \_\_\_\_\_, but now I think \_\_\_\_\_ about wildfire.
- A way people can reduce accidental wildfire ignitions is by \_\_\_\_\_.
- Something that my family and I have already done to prepare for a wildfire is \_\_\_\_\_.
- Something I plan to do in the future to prepare for a wildfire is \_\_\_\_\_.
- A wildfire mitigation project that I think is important is \_\_\_\_\_ because \_\_\_\_\_.
- Some things I will put, or already have, in my Go Bag are \_\_\_\_\_.
- Something important I learned in class that I shared with my family is \_\_\_\_\_.
- When I talked with my family about the Family Communication Plan they said \_\_\_\_\_.
- Something I think more people in my community should know about wildfire is \_\_\_\_\_.
- I can help my family protect our home from embers by \_\_\_\_\_.
- To prepare my pets for a wildfire I can \_\_\_\_\_.
- If my friends do not know about wildfire preparedness, I would tell them \_\_\_\_\_.



**Evaluation:**

<b>Letter to Ready Raccoon</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
Length and Format	Students write a small paragraph to one page in length in a letter format.	Students write a small paragraph in a letter format.	Students write a few sentences of reflection, but not in a letter format.
Content	The letter demonstrates a strong understanding of three or more program topics with strong personal relevance.	The letter demonstrates an understanding of one or two program topics and gives some personal relevance.	The letter demonstrates a weak understanding of program topics and does not make the connection to personal relevance.
Spelling Punctuation Grammar Readability	The letter is mostly free from errors, easy to understand, and well organized.	The letter contains a few errors and is overall understandable and organized.	The letter contains many errors and is difficult to understand or unorganized.

**Lesson Extension Recommendations:**

REDI Jedi Master Program

Lesson 9: Illuminating Fire Practices

*Coming Soon! Availably Early 2022.*

# Forest Ranch & Butte Meadows

## "Ready, Set, Go" Evacuation Plan



## Get ready!

## Prepare your family...

### Create an evacuation plan that includes:

- ▲ A designated emergency meeting location outside the fire or hazard area. This is critical to determine who has safely evacuated from the affected area.
- ▲ Several different escape routes from your home and community. Drive these routes often so everyone in your family is familiar with them.
- ▲ An evacuation plan for pets and large animals such as horses and other livestock. Go to NVADG.org
- ▲ A Family Communication Plan that designates an out-of-area friend or relative as a point of contact to act as a single source of communication among family members in case of separation. (It is easier to call or message one person and let them contact others than to try and call everyone when phone, cell, and internet systems can be overloaded or limited during a disaster.)
- ▲ Sign up for Emergency Notifications at [www.buttecounty.net/massnotification](http://www.buttecounty.net/massnotification)



### Be Prepared:

- ▲ Have fire extinguishers on hand and train your family how to use them (check expiration dates regularly).
- ▲ Keep your gas tank at least half full at all times.
- ▲ Assemble a Go Bag (emergency supply kit) for your family and pets.
- ▲ Keep a list of emergency contact numbers available.
- ▲ Post your address by your driveway so it's clearly visible.
- ▲ Obtain street maps for the city and county; keep them in your car or download them to your smart device.
- ▲ Keep a Go Bag in your car in case you cannot get to your home.
- ▲ Ensure that your family knows where your gas, electric, and water main shut-off controls are located and how to safely shut them down in an emergency.
- ▲ Make your home/property more fire safe; find resources at [www.buttefiresafe.net](http://www.buttefiresafe.net) and [www.readyforwildfire.org](http://www.readyforwildfire.org)

## Our household safety plan (complete before an emergency incident):

Our address \_\_\_\_\_ Phone \_\_\_\_\_

In the event of an evacuation, we will meet at \_\_\_\_\_

Animals: North Valley Animal Disaster Group (NVADG) Hotline: 530-895-0000; NVADG.org

During an evacuation, we'll take our animals to \_\_\_\_\_

Local contact (neighbor/relative): In the event that roads are closed, our local contact to care for children and pets is

Name \_\_\_\_\_ Phone \_\_\_\_\_

Out of area contact/phone \_\_\_\_\_ School phone \_\_\_\_\_

Other important contacts \_\_\_\_\_

We have neighbors who may need help (persons with disabilities or persons with access and functional needs) \_\_\_\_\_

**Fire info: (530)538-7826 Sheriff's Emergency info: (833)512-5378**

## Home Evacuation Checklist – How to Prepare for Evacuation

### Prepare for Evacuation

- ▲ Alert family and neighbors.
- ▲ Dress in appropriate clothing (i.e. clothing made of cotton or wool and work boots). Have gloves, goggles, a dry bandana and dust mask handy.
- ▲ Grab your Go-bag and add last minute items.
- ▲ Check official social media sites, tv stations, local radio and the emergency phone numbers on page one of this plan.
- ▲ Drink plenty of water and prepare your family and pets.

### Inside the house

- ▲ Shut all windows and doors, leaving them unlocked.
- ▲ Remove flammable window shades and lightweight curtains. Close metal shutters.
- ▲ Move flammable furniture to the center of the room, away from windows and doors.
- ▲ Shut off gas at the source (meter or tank). Turn off pilot lights.
- ▲ Leave your lights on so firefighters can see your house under smoky conditions.
- ▲ Shut off the air conditioning.

### Outside the house

- ▲ Put your Go Bag in your vehicle.
- ▲ Back your car into the driveway with vehicle loaded and all doors and windows closed. Carry car keys with you and have a spare. Leave gates open for access.
- ▲ Check on neighbors and make sure they are preparing to leave.
- ▲ Gather up flammable items from the exterior of the house and bring them inside (patio furniture, toys, door mats, trash cans, etc.) or place them in your pool.
- ▲ Turn off propane tanks.
- ▲ Move propane BBQs and appliances away from structures.
- ▲ Connect garden hoses to outside water valves or spigots for use by firefighters. Fill water buckets and place them around the house.
- ▲ Don't leave sprinklers on or water running, they can affect critical water pressure.
- ▲ Leave exterior lights on so your home is visible to firefighters in the smoke or darkness of night.
- ▲ Have a ladder available and place it at the corner of the house so firefighters can quickly access roof.
- ▲ Seal attic and ground vents with pre-cut plywood or commercial seals.
- ▲ Patrol your property and monitor the fire situation. **Don't wait for an evacuation order if you feel threatened.**

## Remember the Six “P’s”

**People and pets**

**Papers, phone numbers, important documents**

**Prescriptions, vitamins, eyeglasses**

**Pictures and irreplaceable memorabilia**

**Personal computer, hard drive, discs**

**Plastic (credit & ATM cards), cash**

**Keep these six “P’s” ready in case immediate evacuation is required.**

### Animals: Go to NVADG.org

- ▲ Locate your pets; transport them with you. Need help? Call NVADG: 530-895-0000
- ▲ Prepare and transport large animals early to a safe location.



When an evacuation order is issued by public safety officials or you feel threatened, leave immediately to avoid being caught in fire, smoke or road congestion. In an intense wildfire or other evacuation order, officials will not have time to knock on every door. Listen for high-low sirens.

- ▲ Advisements of potential evacuations will be given as early as possible. You must take the initiative to stay informed and aware when an evacuation is ordered or a warning has been issued. For announcements, call 2-1-1, listen to your radio, TV and monitor official social media sites from public safety and governmental agencies. For exact evacuation warnings and orders, call the Fire Info or Sheriff's Info phone numbers located on the first page.
- ▲ Areas to be evacuated and escape routes will depend upon the emergency's location, direction of travel and severity. Know your map as well as zone, if indicated. Look at the possible routes you might be directed to use.
- ▲ You may be directed to a designated Public Assembly Point for your immediate safety—and later to an evacuation shelter.

## If you are trapped...

### In your home:

- ▲ Stay calm, keep your family and pets together.
- ▲ Call 911 and inform authorities of your location.
- ▲ Keep doors and windows closed, but unlocked.
- ▲ Stay away from outside walls and windows.

### On foot:

- ▲ Stay calm.
- ▲ Go to an open area clear of vegetation, a ditch or depression on level ground if possible.
- ▲ Lie face down, cover up your body.
- ▲ Use your cell phone to advise officials of your location—call 911.

### In your vehicle:

- ▲ Stay calm.
- ▲ Park your vehicle in an open area clear of vegetation.
- ▲ Close all vehicle windows and vents.
- ▲ Cover yourself with a wool blanket or jacket.
- ▲ Lie on vehicle floor board.
- ▲ Use your cell phone to advise officials of your location—call 911.

**BE PREPARED.** During an evacuation you may be away from your home for an extended time. Be prepared with your completed Household Safety Plan (see page 1 of this document) and be ready to implement it. You may be directed to evacuate outside the area.

## Evacuation advisories to be prepared for:

**Evacuation Order:** Requires the immediate movement of people out of an affected area due to an imminent threat to life. Choosing to stay could result in loss of life. Staying may also impede the work of emergency personnel. Due to the changing nature of the emergency, an Evacuation Order may be the only warning that people in the affected area(s) receive.

**Evacuation Warning:** Alerts people in an affected area(s) of potential threat to life and property. People who need additional time should consider evacuating at this time. An Evacuation Warning considers the probability that an area will be affected and prepares people for a potential Immediate Evacuation Order.

**Shelter in Place:** Advises people to stay secure at their current location by remaining in place as evacuation will cause a higher potential for loss of life.

**Rescue:** Emergency actions taken within the affected area to recover and help injured or trapped citizens leave the area. Entry into this area is restricted to rescue workers only.

### Be Prepared:

During an evacuation you may be away from your home for an extended time. Be prepared with your Household Safety Plan (see page 1 of this document) and be ready to implement it.

### Assembly Point

A temporary assembly area for evacuees to assemble until conditions subside and evacuation routes are accessible, or for evacuees who otherwise cannot evacuate the community on their own and need assistance to be moved to a shelter. Note: Evacuees capable of evacuating on their own to designated shelters or other areas outside of their community do not need to go to Public Assembly Points unless directed by officials.





*Funding provided by North Valley Community Foundation and the Butte Strong Fund.*

# Forest Ranch & Butte Meadows

## “Ready, Set, Go” Evacuation Plan



Butte County Fire Safe Council  
5619 Black Olive Drive  
Paradise, CA 95969

NON-PROFIT  
ORGANIZATION  
US Postage  
**PAID**  
Cedar Creek

[www.buttefiresafe.net](http://www.buttefiresafe.net) 530-877-0984  
[www.readyforwildfire.org](http://www.readyforwildfire.org)

**Need more evacuation plans? Go to:**  
[www.buttecounty.net/oem](http://www.buttecounty.net/oem)

### One-Way Evacuation Operations

“One-Way Evacuation Operations” means that all the travel lanes on a designated section of road would proceed in one direction as residents and visitors leave the area in advance of a wildland fire or emergency.

#### Key Points

- ▲ Primary Evacuation Plans will be implemented first. If these plans are proving effective in handling the evacuating traffic, then a One-Way Evacuation Operation is not likely to be implemented. One-Way Evacuation Operations are most likely to be used in populated areas.
- ▲ Emergency responders will decide if One-Way Evacuation must be implemented based on the specific needs of the incident. Entry and termination points will be determined based on the location, direction and rate of the fire spread.
- ▲ Be sure to obey the officers' directions and follow the traffic cones and other route markers. All state highway safety regulations and traffic laws apply for the reversed lanes, including speed limits.
- ▲ Message boards may be used to provide key information at the beginning of the reversed lane to assist you with your choices.

- ▲ Law enforcement officers or other personnel will be at the entrance and termination of the route directing traffic. Do not stop to ask questions because officials will not answer questions and this will slow the evacuation process.
- ▲ Check social media sites, tune into local radio and TV stations or call 2-1-1 for emergency information about the One-Way Evacuation route.
- ▲ Vehicles entering the One-Way Evacuation route are expected to travel to the end of the route.
- ▲ Commercial vehicles, recreational vehicles and those towing boats or other trailers should remain in the right hand travel lanes.
- ▲ Stay with your vehicle at all times.

#### What Routes will be used for One-Way Evacuation?

- ▲ Routes will be based on the specific needs of the incident. Entry and termination points will be determined based on the location, direction and rate of the fire spread.



**If your vehicle stops working, pull it as far off to the side of the road as you can.**

# Stay<sup>77</sup> In the know

## Phone

**9-1-1 for emergencies only, not for information**

### **CAL FIRE/Butte County Fire Information Line**

1.530.538.7826

*For extended fire emergencies in the County area, Town of Paradise, City of Biggs and Gridley*

### **Town of Paradise Information Line**

1.530.872.5951

*Staffed during major emergency events*

### **PG&E Information Line**

1.800.743.5000

*Report power outages and downed power lines.*

### **Caltrans Information Line**

1.800.427.7623

*For current highway conditions*



## Television & Radio

**KHSL** Channel 12

**KNVN** Channel 24

**KRCR** Channel 7

**KPAY** 1290 AM

**Berry Creek** Community radio: 1250 AM

**Yankee Hill** Community radio: 1630 AM

**Magalia** Community radio: 1460 AM

**Town of Paradise** Community radio: 1500 AM

## Internet

**CAL FIRE** <http://www.fire.ca.gov>

**BUTTE COUNTY** <http://www.buttecounty.net>

**ROAD INFORMATION** <http://www.dot.ca.gov>  
<https://www.buttecounty.net/roadconditions>  
<https://www.chp.ca.gov>

**WEATHER INFORMATION** <http://www.weather.gov>

## Facebook

**CAL FIRE** [facebook.com/CALFIRE](https://facebook.com/CALFIRE)

**Butte County** [facebook.com/ButteCounty](https://facebook.com/ButteCounty)

**Butte County Sheriff News**

[facebook.com/bcsonews](https://facebook.com/bcsonews)

**Butte County Public Health**

[facebook.com/buttecountypublichealth](https://facebook.com/buttecountypublichealth)

**Town of Paradise** [facebook.com/townofparadise](https://facebook.com/townofparadise)

**Oroville Fire** [facebook.com/cityoforovillefire](https://facebook.com/cityoforovillefire)

**Chico Fire** [facebook.com/chicofiredepartment](https://facebook.com/chicofiredepartment)

## Twitter

**Fire/Rescue** @CALFIRE\_ButteCo  
@chicoFD

**Law Enforcement** @ButteSheriff  
@ChicoPolice  
@CHP\_Chico

**Government** @CountyofButte  
@BCPubHealth  
@CAL\_FIRE  
@paradise\_ca

# EMERGENCY!

**Keep this guide close by.**

**Discover what you need to:**

- Prepare for an emergency.
- Understand emergency weather warnings and evacuation terms.
- Find information from official sources during an emergency.

**Be Prepared**

**Be Informed**

**Stay In the know**



# Be Prepared

Visit **READY, SET, GO!**

[www.ReadyForWildfire.org](http://www.ReadyForWildfire.org)

Learn more about being prepared.



## Have a Go Bag

Duffle bag with 48 hours of supplies, water, snacks, medications, toiletries, credit cards and cash, important documents and computer files—and, if you have a pet, pet food, water and supplies.

## Radio & Mobile Devices

You can receive information during an emergency by keeping your mobile devices charged and monitoring a battery-operated radio.

## Community Evacuation Plan

Do you have yours?

Go to Butte County Office of Emergency Management at [www.ButteCounty.net/OEM/DisasterPreparedness](http://www.ButteCounty.net/OEM/DisasterPreparedness) and download the evacuation plan for your community.

# Be Informed

## Learn Severe Weather Terms

**Watch:** “Be aware.” Conditions are favorable for the development of severe weather which could impact fires.

**Warning:** “Take action.” Weather conditions pose a threat to life or property. Potential for critical fire behavior.

## Learn Evacuation Terms

**Evacuation Warning:** Alerts people in an affected area(s) of potential threat to life and property. People who need additional time should consider evacuating at this time. An Evacuation Warning considers the probability that an area will be affected and prepares people for the potential of an Immediate Evacuation Order.

**Immediate Evacuation Order:** Requires the immediate movement of people out of an affected area due to imminent threat to life. Choosing to stay could result in the loss of life. Staying may also impede the work of emergency personnel. Due to the changing nature of the emergency, the Immediate Evacuation Order may be the only warning people in the affected area(s) receive.

**Public Assembly Point:** A temporary assembly area that provides a safe haven for evacuees to assemble until conditions subside and evacuation routes are accessible, or for evacuees who otherwise cannot evacuate the community on their own and need assistance to be moved to a shelter. Note: Evacuees who are capable of evacuating on their own to designated shelters or other areas outside of their community do not need to go to Public Assembly Points unless directed by public safety officials.

## Sign Up For:



### Emergency Mass Notification

**System:** Receive emergency notifications by phone (landline or mobile), text or email. Sign up: [www.ButteCounty.net/MassNotification](http://www.ButteCounty.net/MassNotification)

## Review Disaster Preparedness Guidelines

### Butte County Office of Emergency

**Management:** [www.ButteCounty.net/OEM/DisasterPreparedness](http://www.ButteCounty.net/OEM/DisasterPreparedness)



## Download a Mobile App:

### CALFIRE Ready for Wildfire App:

Available on Android, Apple and Windows phones and devices. Visit App Store or Google Play Store and search “CALFIRE.”

### Paradise Police App:

Available on Android, Apple and Windows phones and devices. For download instructions, go to: <https://www.TownOfParadise.com> then navigate to: Our Government>Departments>Police

## Wildfire in the Foothills Review Game

100- True/False

200/300- Multiple Choice

400/500- Short Answer

### Geography & Landscapes

**100**

True or False, tropical savannah is one of the landscapes found in Butte County.

False

**200**

Which of the following is not an element of a fire-adapted community?

Prevention

Lifeguard Training

Recovery

Safety & Evacuation

**300**

Which of the following landscapes has a dense structure with many cone-bearing, evergreen trees?

Grassland

Chaparral

Blue Oak Woodland

Mixed Conifer Woodland

**400**

What are three factors that affect where plant communities are found?

Answers may include:

Elevation, climate, light, water, soil, temperature, and human activities.

**500**

What are three positive benefits that fire can bring to a landscape?

Answers may include:

Replenish nutrients, stimulate plant growth and food productivity, reduce hazardous fuels, reduce pests and disease, remove competition for light and water, and support seed germination.

## Cultural Fire

**100**

True or False, cultural fires are beneficial for black oak trees because fire can improve the output of the tree's pinecones.

**False**

**200**

Which of the following Native American tribes were the original inhabitants of what is today Butte County?

Miwok

**Maidu**

Pomo

Modoc

**300**

Which term describes the Indigenous knowledge of local resources and natural systems developed over thousands of years?

Native Environmental Learning

**Traditional Ecological Knowledge**

Nature Awareness

Traditional Landscape Science

**400**

What are two uses of cultural fire that improved ecosystem health or livability for Indigenous Californians?

**Answers may include:**

Promote desired habitats and species. Increase favored resources. Alter plant structure for materials to make baskets. Improve travel by opening the landscape. Reduce fuel load around a village to lessen wildfire danger. Improve visibility across a landscape. Improve acorn production in oak trees. Improve soil nutrients. Create a patchwork of resource-rich ecosystems with plants of different ages, sizes, and structures.

**500**

How was Indigenous peoples' relationship with fire different from the dominant view of fire today?

Indigenous people used fire as a land management and cultural tool to maintain healthy and safer ecosystems. They understood the methods and outcomes to use fire safely and effectively, knowing that fire is a vital, natural process. Today, many people only view fire as destructive, dangerous, and something that should be suppressed. Fire is not culturally related to many Western inhabitants in California today.

## Fire Physics & Ignitions

**100**

True or False, the three sides of The Fire Triangle are oxygen, fuel, and heat.

True

**200**

Which weather ingredient is the most critical factor that affects fire behavior?

Temperature

Wind

Moisture

**300**

What is the name for the area where houses meet or intermingle with undeveloped wildland vegetation?

Urban-rural rangeland

Wildland urban interface

Mountain home complex

Residential forest zone

**400**

What is the primary natural cause of wildfire?

Lightning

**500**

What is an example of a human-caused ignition and what can be done to reduce the likelihood this happens?

Many possible answers, refer to PSA activity.

## Community Wildfire Mitigation

**100**

True or False, wildfire mitigation is only a job for firefighters.

**False**

**200**

Which of the following is not a wildfire mitigation strategy?

Grazing goats

Prescribed fire

Forest thinning and chipping

**Arresting arsonists**

**300**

How do goats and sheep help with wildfire mitigation?

**They eat flammable and invasive plants that build up fuel.**

They can sense when fire season approaches and gives people a warning.

They eat bark beetles and mistletoe which can kill trees.

They are cute and make people feel better.

**400**

What is one of Wildfire Ready Raccoon's messages from his music video?

**Answers may include:**

**Remove fuels from around and under the home, keep leaves and needles off the roof and out of the gutters, trim bushes and grass, make a plan, and have supplies and pets ready to evacuate.**

**500**

What is a mitigation strategy you learned about that you think is important for your community and why?

**Multiple answers**

## Fire Resistant Structures

**100**

True or False, if you have good defensible space, embers cannot reach your house during a wildfire.

False

**200**

Most wildfire home ignitions are caused by:

Fire tornados

Embers

Electricity

Ponderosa pine trees

**300**

What are the Firewise principles?

A set of landscaping laws you will be fined for breaking.

A list of guidelines people can use to create ideal defensible space on their property.

A fire-resistant plant encyclopedia.

An evacuation planning document.

**400**

What type of plants can be a fire hazard and should be removed around a home?

Answers may include:

Plants with oils and waxes. Non-native, flammable plants such as seasonal grasses or Scotch and Spanish broom. Plants that grow against or over a house. Trees with low limbs creating ladder fuels. Dead or dying vegetation.

**500**

What is one recommendation from each of the three Home Ignition Zones? (Hint 0-5, 5-30, 30-100)

Many answers. Refer to Firewise handout.



## Family Preparedness - Get Ready!

**100**

True or False, a family should all share a Go Bag.

False

**200**

Which of the following should a family do to prepare for wildfire?

Each person has a personal Go Bag.

You have designated an out-of-area contact person.

You have written an Action Plan with a task for each person to complete.

You have practiced your Family Emergency Plan.

All of the above.

**300**

Which item would you not put in a Go Bag?

Water bottle

Printed evacuation map

Blow-up mattress

Change of clothes

**400**

Why should a family select a regional meeting place and a backup meeting place in their family communication plan?

It may not be possible to all meet back at home before evacuating. The fire may block access to home, close roads, or make the first chosen meeting place unsafe to get to. Evacuation orders may direct traffic out of certain areas.

**500**

Describe three things you should do to prepare your pets or livestock for an evacuation.

Answers may include:

Build a Go Kit for your pet. Make sure you have a collar with ID tags and a harness or leash.

Have copies of your pet's documents available online. Practice loading them into carriers or cages. Have a picture of you and your pet together. Have phone numbers and addresses for emergency animal shelters.

## Wildfire Response - Get Set, Go!

**100**

True or False, Twitter is not a reliable source to find information during a wildfire.

False, depending on what source you are looking at.

**200**

What is true about an Immediate Evacuation Order?

You will receive three orders before you must leave.

It is safe to stay if you have defensible space around your house.

It requires the immediate movement of people out of an area.

CAL FIRE could use your help fighting the fire at this point.

**300**

Which of the following could you do to prepare your phone for an emergency?

Download offline maps for your area.

Sign up for Emergency Notifications.

Save important phone numbers including your neighbors' and your out-of-town contact.

All of the above.

**400**

What is the name and/or location of your closest Public Assembly Point?

Answers vary, refer to the Emergency Travel Routes and Public Assembly Point Map

**500**

In the "Get Set!" section of the *Ready, Set, Go Evacuation Plan*, what is something to do inside and outside the house before evacuating?

See guide for answers. (6 options inside, 12 options outside)

## Culmination Activity: Firewise Community Meeting

Residents, community groups, and public agencies all play important roles during planning, surviving, and recovering from a wildfire. You were introduced to the National Fire Protection Association's Firewise USA® Program in Lesson 5 where residents voluntarily form a group with their neighbors to improve their wildfire safety and preparedness. Part of this process is holding one or more community meetings to share ideas and make an Action Plan.

Your class will review concepts from the seven lessons and hold a mock Firewise community meeting. At this meeting, students will represent a stakeholder or professional that has something important to share about wildfire. After hearing everyone's presentations, you can end the Wildfire in the Foothills program with a class discussion.

Setting up your class Firewise community meeting:

- 1) After reading through the steps, explain the activity's purpose and the procedure to your class. Invite students to step into the roles of residents and wildfire stakeholders.
- 2) Cut up character cards and pass one out to each student. Some cards are the same character, but with a different focus and information to share. If you run out of character cards, you could create your own characters to fill in a missing topic or add more residents with challenges or questions for the group. The focus of the Firewise USA® program is on improving fire safety on private property. This community meeting will take a wide overview of wildfire and include a few new topics not mentioned previously in the program. Give students a few days to research the missing information for their characters and prepare to share their card with the group. If the card mentions a specific organization or program, their website is a good place to start looking for this information. The cards do not offer enough room in the blank spaces to write in the full answers so students will need to bring additional paper for notes. Props or costumes to support their character could be an option on the day of the meeting.
- 3) On meeting day, arrange desks facing inward to form a large circle. This gives the feeling of collaboration and students can present from their desks without having to stand in front of the class. Have students fold a piece of paper in half to make a placard where they will write their character.
- 4) You will fill the role of Firewise Community Leader and host the meeting. Call the meeting to order and welcome the guest speakers and residents of the community. State that the focus of the meeting is to learn how to create a more fire-safe community. Expert guests have been invited to share their knowledge and help answer

important questions. Community members will also be able to share their experiences and ask questions. The meeting will be split into three parts: mitigation and planning, wildfire response, and wildfire recovery. Or more simply put, before, during, and after a wildfire.

- 5) To keep the class engaged during peer presentations, have each student bring a blank piece of paper for notes. Students can turn this paper in at the end of the meeting for credit. Have students separate their paper into three columns to fill in during the presentations:

Classmate's Name ----- Character/Role ----- I help my community be fire-safe by----

- 6) Possible post-meeting discussion questions:

What advice does the group have for the two landowners that have challenges?

What support does the community have to offer the high school senior?

What are some of the community's greatest strengths?

Can you think of other community members who should be a part of the next meeting?

Why do you think our class has spent time doing the Wildfire in the Foothills program?

What is the most important thing you have learned during this program?

What do you think your *real* role is in building a fire-resilient community? Or what would you like it to be?

Do you feel like you have the power to help your family, neighbors, or friends be more prepared for wildfire? Why or why not?

## **Mitigation and Planning Roles**

Defensible Space Inspector

(2) Private Landowner - Overgrown property and difficult neighbor

(2) Homeowner - Defensible space and home hardening

Prescribed Burn Association Organizer

Ecologist

Botanist- invasive species removal

(2) Arborist - Oak and conifer specialist

Chipper Machine Operator

Goat Herd Owner

Landscaper

School Administrator

## **Wildfire Response Roles**

Wildland Firefighter

Volunteer Firefighter

Communication Operator

Red Cross Shelter Volunteer

(2) North Valley Animal Disaster Group Volunteer- Pets and Livestock

Law Enforcement Officer- Assisting at a Public Assembly Point

## Wildfire Recovery Roles

Air Quality Monitor

Geologist - Soil stabilization

Conservation Projects Coordinator- Reforesting

High School Senior

Climate Scientist

## Mitigation and Planning Roles

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I am a **Defensible Space Inspector**.

My job is to perform defensible space inspections on people's property. I help increase their awareness and knowledge of things they can do to reduce their risk and damage from wildfires. Some of the actions I recommend are improving defensible space, reducing fuels, and explaining fire-safe building standards. To help explain defensible space I talk about the three Home Ignition Zones and give people ideas to improve each zone. One common suggestion I make for each zone is:

Zone 1 (Immediate): \_\_\_\_\_

Zone 2 (Intermediate): \_\_\_\_\_

Zone 3 (Extended): \_\_\_\_\_

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I am a **Private Landowner**.

My property is 4 acres of mixed conifer forest with species like \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. This area has not had a fire pass through in 100 years and there is a lot of overgrowth. I can't walk through parts of my property because the vegetation is too thick. Tree canopies are touching over my driveway, and I don't have a clear escape route if there was a fire. I want to make my property safer but I'm not sure where to start. What should I do?

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I am a **Private Landowner**.

I have worked hard to clear defensible space and maintain my property for fire season. My neighbor who is just 200 feet away from me has not. Some of the hazards on their property are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. I worry if there is a fire, embers from their property could blow over to my property. They say they want to keep their property more “natural”. They are friendly people, but I am not sure how to start the conversation. I don’t want to cause an argument. How should I start a conversation or get some help?

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I am a **Homeowner**.

I am working to improve my house’s defensible space. I had a free property inspection last month and was given a list of things to improve to be more fire-safe. Three changes I am going to make to improve my defensible space are:

- 1)
  - 2)
  - 3)
- 

I am a **Homeowner**.

I saw a poster in town that said embers are the cause of most home ignitions during a wildfire. It said that defensible space alone is not enough to protect my home from an ember storm. I didn’t know embers from a large fire can blow from over a mile away! To be more prepared, I am now working to harden my house to embers. Three improvements I am going to make are:

- 1)
  - 2)
  - 3)
- 

I am a **Prescriber Burn Association Organizer**.

We are a group of neighbors who help each other get “good fire” on our properties. We share burn equipment, advice, training, and work. This is a great, low-cost way for community members to gather, share resources, and work together. We meet to prepare and help each other with prescribed burns. Since we started this group in Butte County, I have noticed changes in people’s attitudes towards fire. There is more acceptance of using prescribed fire. A fear that some people have about using prescribed fire is \_\_\_\_\_. The reality is that \_\_\_\_\_.



I am an **Ecologist**.

I study the health of our forest ecosystems. When I study ecosystems that have had low-intensity fire in the past few years I notice:

- 1)
- 2)

When I study ecosystems that have not had a fire in a very long time I notice:

- 1)
  - 2)
- 

I am a **Botanist**.

I work to track and remove invasive plant species. Some invasive plants in our area we should focus on removing is \_\_\_\_\_ and \_\_\_\_\_. These plants are harmful and increase our risk of wildfire because \_\_\_\_\_.

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I am an **Arborist**.

I specialize in the health of oak trees. In Butte County, we have multiple species of oaks including valley oak, blue oak, interior live oak, black oak, canyon live oak, and scrub oak. Low-intensity fire can benefit oak trees by \_\_\_\_\_. Oak trees are important to the oak woodland ecosystem because \_\_\_\_\_. They are also a culturally important tree for the Maidu people because \_\_\_\_\_.

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I am an **Arborist**.

I specialize in conifer trees. An adaptation the \_\_\_\_\_ tree has to live with fire is \_\_\_\_\_. This tree could be at risk from a wildfire if \_\_\_\_\_. In conifer forests that have not had a fire in a long time, the forest structure becomes very dense. Mature trees crowd out the smaller trees so the forest is not diverse. These forests are made up of the same few species until something thins out the forest. Large fires that sweep through these overgrown forests often kill all the trees because the heat is so intense. Keeping regular, controlled fire in these ecosystems can help lessen this problem.

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I am a **Chipper Machine Operator**.

Do you have fallen branches, overgrown brush, and other vegetation that needs chipping? At the Butte County Fire Safe Council, we have a Chipper Program that offers free services to residents who are working on their wildfire safety. I will bring out the chipper machine and leave you with some chipped-up scattered mulch. This is an alternative to pile burning or hauling brush yourself. If you want me to chip on your property here is what you need to do to get ready \_\_\_\_\_.

-----

I am a **Goat Herd Owner**.

I own 200 goats that are used for fuel reduction projects around the county. Goats help reduce wildfire risk because \_\_\_\_\_. Some of the plants they munch down include \_\_\_\_\_. One of the benefits of using goats to reduce this vegetation is \_\_\_\_\_. This idea has been catching on and people are paying more attention to the idea of using grazing for fire mitigation.

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I am a **School Administrator**.

I work at \_\_\_\_\_ (your school's name) school. I am responsible for making sure our school has a fire emergency plan and that all staff know what to do if there is a fire threat. At our school if there is a fire threat we plan to \_\_\_\_\_. To make sure everyone knows the plan I will \_\_\_\_\_. If students are told we need to evacuate it is important that they \_\_\_\_\_.

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I am a **Landscaper**.

I help people create more fire-resistant landscaping. It is important to make good choices about what plants to put around your house. Two plant species I advise against keeping are \_\_\_\_\_ and \_\_\_\_\_ because \_\_\_\_\_. I encourage people to plant California native, drought-tolerant plants instead. They save water and their property becomes much more fire-resistant.

## Wildfire Response Roles

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### I am a **Wildland Firefighter**.

I am part of a team that works on prescribed burns, wildfire suppression, and fire preparedness. I have an extremely physically and mentally difficult job. I often work 12 hours a day and can be sent out with my team to a wildfire for days to weeks at a time. I have learned how to use and maintain equipment like fire engines, tractors, mowers, chain saws, and hand tools. I have also learned how to use a topographic map and compass, use weather monitoring tools, and predict a fire's behavior. I must always be alert to a fire's behavior and conditions. Three factors that affect fire behavior are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. Some things I watch out for that could lead to a higher severity fire is \_\_\_\_\_ and \_\_\_\_\_.

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### I am a **Volunteer Firefighter**.

I am part of the Butte County Fire Department. I serve my community by responding to a wide variety of situations. I must be prepared to respond to a call, day or night. Sometimes I am responding to an emergency and other times I help people with requests for information and assistance. Part of public education is explaining to people the "Ready, Set, Go" model. These steps mean \_\_\_\_\_. Something you should do at each step is:

Ready \_\_\_\_\_

Set \_\_\_\_\_

Go \_\_\_\_\_

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### I am a **Communications Operator**.

I work in Emergency Command Center Operations for Butte County. We process around 48 incidents per day or 17,500 per year. If a 911 call is for fire rescue, medical, or other non-law enforcement emergencies, the caller is transferred to us. We coordinate emergency response within Butte County, as well as communicate with our neighboring counties for assistance during a wildfire. If you are searching for information and updates during a wildfire emergency, you could use the following sources:

- 1)
- 2)
- 3)

During a wildfire you should call 911 if \_\_\_\_\_.

**I am an American Red Cross Volunteer.**

Ninety percent of the American Red Cross workforce are volunteers. I volunteer on the Disaster Action Team. If an emergency shelter is opened due to a wildfire, I help evacuees by offering emotional support, serving meals, providing medical care, and providing what information I can. If people are asked to evacuate, they should listen to local officials for information about the nearest evacuation point or shelter. If people need to evacuate to a shelter, they should try and bring \_\_\_\_\_ with them. Some things they should not bring are \_\_\_\_\_.

**I am a North Valley Animal Disaster Group Volunteer.**

Our mission is to educate Butte County residents on pet evacuation. During an emergency, we help evacuate, rescue, or shelter-in-place animals at risk. We train year-round on fireline safety, emergency equipment, radio operations, animal rescue, and animal handling so our team is ready to respond. There are some important things you can do now to prepare your pet for an evacuation. This can include:

- 1)
- 2)
- 3)

**I am a North Valley Animal Disaster Group Volunteer.**

In addition to household pets, we can help with larger animals and livestock like \_\_\_\_\_ that people are unable to evacuate with or take to a shelter. An important thing you should do now is make a plan. You should know where you would evacuate the animals. Have several evacuation routes in mind. If you don't have your own truck and trailer, make arrangements with local companies or neighbors before a fire emergency. Other actions you can take to prepare your large animals and livestock are:

- 1)
- 2)

**I am a Law Enforcement Officer.**

I help people get to their nearest Public Assembly Point and follow evacuation routes. People must be familiar with these places so they can evacuate quickly and safely during a wildfire emergency. The nearest Public Assembly Point is \_\_\_\_\_. To get there from here you need to go \_\_\_\_\_.

### I am an **Air Quality Monitor**.

It is important people protect themselves from the dangers of wildfire smoke. You can check online for local air quality reports by typing your zip code into AirNow.gov. Here you will find your area's Air Quality Index (AQI) which is a color-coded scale from 0 to 500. Today's air quality is \_\_\_\_\_ with the \_\_\_\_\_ color code. If there is poor air quality from smoke, keep indoors as much as possible and keep windows and doors closed. Do not rely on paper or cloth masks for smoke protection. These masks will not protect your lungs from the small particles of wildfire smoke. A \_\_\_\_\_ mask is a mask that could protect you from smoke and should be added to your Go Bag.

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### Recovery Roles

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#### I am a **Geologist**.

I work for the U.S. Forest Service and focus on fire recovery. After a fire, landscapes are missing roots and vegetation cover that stabilizes soil. This causes faster erosion of soils which can lead to debris flows and flooding. The mass movement of soil and water downhill or downstream from the fire area can be dangerous and destructive. My job is to help prevent erosion and stabilize slopes after a fire. Some of the ways I do this is by:

- 1)
  - 2)
- 

#### I am a **Conservation Projects Coordinator**.

I oversee large reforestation projects with the Resource Conservation District of Butte County. Putting the forest back the way it was before the fire is not "recovery". We must set the new forest up to be successful with the current and future impacts of climate change. Butte County will experience longer droughts, warmer wetter storms, and have more frequent fires. We will not replace every tree that burned because Butte County's "next forest" needs to be less dense. One of our efforts is in oak restoration. The new forest will be open, patchy, and diverse. This is a healthier ecosystem and safer for people to live in and around because \_\_\_\_\_.

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I am a **High School Senior**.

I have to fulfill 20 hours of community service for school this year. I want to make wildfire recovery the focus of my senior project and I have three school friends who can help me. I want to make a positive impact here before I get a job or go to college next year. My project idea is to \_\_\_\_\_. This is important because \_\_\_\_\_. Are there any organizations here that can help me do this? I need someone to supervise and sign off on my hours.

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I am a **Climate Scientist**.

I study the impacts that climate change has on ecosystems and predict future climate conditions. Some of the effects of climate change that contributes to more frequent and higher-severity fires in California are \_\_\_\_\_ and \_\_\_\_\_. My research is important so that we can develop new strategies to deal with the changes that climate change will bring to our forests and communities.

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